AIRCRAFT NOISE PROBLEMS

THE UNIVERSITY OF MICHIGAN
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HEARINGS

BEFORE

SUBCOMMITTEES OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE HOUSE OF REPRESENTATIVES

EIGHTY-SIXTH AND EIGHTY-SEVENTH CONGRESSES

SEPTEMBER 7, 1959, FEBRUARY 23, APRIL 20, 21, 1960, APRIL 12, 1961, JULY 17, 18, DECEMBER 4, 5, AND 6, 1962

FILE

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AIRCRAFT NOISE PROBLEMS

MONDAY, SEPTEMBER 7, 1959

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TRANSPORTATION AND
AERONAUTICS, AND
SUBCOMMITTEE ON HEALTH AND SAFETY OF THE
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
New York, N.Y.

The subcommittees met, pursuant to notice, at 10:30 a.m., control tower, Idlewild Airport, New York, N.Y., Hon. Oren Harris (chairman of the committee) presiding.

The CHAIRMAN. Let the committee come to order, please.

Ladies and gentlemen, may I say in behalf of the Committee on Interstate and Foreign Commerce of the House of Representatives, we are delighted to be in New York and at this great airport. I know something about your problems. We all do. As a matter of fact, we have been involved in problems of safety and of the many, many things involved in the operation of an airport, and in the tremendous program of aviation that we have in this country.

To those here, I extend a cordial welcome to meet with us this morning for the purpose we have assembled, and for which we came to New York. But in order that you may know that the members of this great committee are interested in your problems, too, I think it would be appropriate if I were to tell you just who each member is.

First, I am Oren Harris. I am chairman of the Committee on Interstate and Foreign Commerce. I am from Arkansas.

To my right is the Honorable John Bell Williams. He is chairman of the Subcommittee on Transportation and Aeronautics. Mr. Williams is from Mississippi.

Next is Mr. Moulder. Mr. Moulder is a member of the subcommittee, as well as the full committee. He is from the State of Missouri. These are Democrats I am presenting to you at the present time.

Next to him we have Mr. Sam Friedel. Mr. Friedel is a walking chamber of commerce for Friendship Airport, Baltimore, Md.

And Mr. Jack Flynt, from Georgia; Mr. Hemphill, from South Carolina; and Mr. Brock, from Nebraska.

On my left, I do not have to tell you people who this gentleman is. A member of the committee and the subcommittee, of which Mr. Williams is the chairman, one of your own very fine able Republican members of this committee and the Congress, Steve Derounian. Mr. Derounian, of course, as a member of the committee, has been one of those who has brought this problem to our attention, with emphasis, I might say.

The next gentleman is from the State of Pennsylvania, Mr. Al Bush.

And from the State of Ohio, we have a new member of the committee, Mr. Sam Devine.

Another gentleman from New York that you, of course, know very well, and who presented the resolution originally that primarily brought about the study that we are making at the time is you own Congressman from New York, Al Bosch.

I might also say that another great member of your New York delegation, who is not here this morning but who has brought to the attention of the committee the interest of the people not only of this airport here but also La Guardia—and I am sure there are some people from La Guardia area here—is the chairman of the great Judiciary Committee of the House of Representatives, Mr. Manny Celler.

Recently, Mr. Bosch introduced a resolution in the House of Representatives to establish a select committee. The resolution went to the Rules Committee which, under the Rules of the House, has jurisdiction of such matters. The select committee, under the resolution, would make a study and an investigation of jurisdiction in connection with the aircraft noise problem.

Mr. Bosch, Mr. Derounian, and other members have discussed with us these problems for some time. As a matter of fact, this committee made quite a study of this particular problem before the jets came into being. In 1948, we had a special committee that came to New York, primarily at Newark, and made a study of the noise problem. At that time, some of the industry had proposed some kind of a gadget that had for its purpose abatement of noise. Apparently it didn't work out too well, so far as the conventional aircraft was concerned. But I do know since then a great deal of attention and study has been given to the problem by not only those who are managing the airports, and who have control and authority over such management, but the aviation agency that is now the Federal Aviation Agency, which has the duty and responsibility under the law to administer the program, and the industry that is so tremendously concerned with all of these problems.

We have, in Washington, given 2 days to this study and investigation recently.

The committee suggested that we make a study of it prior to the adjournment of this Congress. The hearings in Washington were executive sessions. We did invite representatives of your port authority, members of the Federal Aviation Agency, members of the industry, the Airline Pilots Association, and others to be present for those executive sessions, because we wanted to get all the information we could from any and all persons who had responsibility in this field.

Knowing of the interest that you people have here in New York, it was decided that it would be appropriate to come here for this day's session in order to continue this study and investigation and let you, in a public hearing hear the testimony of your port authority, your Regional Administrator of FAA, Admiral Rosendahl and others regarding such matters.

Now, I know that many of you would probably like to be heard. We, of course, would like to accommodate everyone. But we have just so much time, and we are not going to be able to hear everyone. It did occur to me that your port authority should speak primarily for

the local people, because they are charged with the administration of these airports around here.

A SPECTATOR. You don't know our trouble, Mr. Chairman.

The CHAIRMAN. I am sure that you have a lot of trouble. But you might also understand that the committee is making the best possible effort it can to get at this problem. And we would, of course, appreciate the cooperation of everyone.

I have suggested to those who would like to be noted of record, in attendance at this session this morning, that you write your name on one of these pieces of paper and hand it to the clerk of the committee, so we will know who you are, if you represent any group or organization, and that you are interested in this particular problem.

And now, with the preliminary statement, I will ask the representative of the port authority——

Mr. DALRYMPLE. Mr. Chairman, may I inquire?

The CHAIRMAN. What is your name?

Mr. DALRYMPLE. Royal E. Dalrymple, representing two large civic groups in the great county of Queens, and that county is a victim of these low-flying planes.

I would like to inquire, Mr. Chairman, if there will be a time limit to the speakers. If so, we beg of you to allow a few civic leaders a few minutes each to give testimony.

Thank you—and may I add a hearty welcome to Queens. We have missed you.

Thank you.

Mr. FELTON. Mr. Chairman, my name is Harold Felton. I am from the La Guardia area. We have heard the Port of New York Authority and Admiral Rosendahl and the airlines for a number of years. You gentlemen heard them yesterday and the day before. I suggest to you if it won't interfere too much with your program that no one here any more has anything we can possibly hear from them that we have not already heard, and I suggest to you very ardently that you hear from the local people.

The CHAIRMAN. Well, I might say we could go on with this, and we are taking time by doing it, but the committee has a program set up, and the committee will determine the witnesses that it is going to hear. We came here for a special purpose, and I want all of you to know it. If we were not interested, we wouldn't be here. Now, if you just give us an opportunity, we will do our best to develop this record. The committee has not heard the port authority. The committee has not heard from the Admiral. And so the committee is going to hear all the facts and develop the record. And insofar as we possibly can, we will hear those of you in the various communities. And I would like for that to be understood.

Mr. Wiley?

STATEMENT OF JOHN R. WILEY, DIRECTOR OF AVIATION, PORT OF NEW YORK AUTHORITY; ACCOMPANIED BY SIDNEY GOLDSTEIN, GENERAL COUNSEL

Mr. WILEY. Mr. Chairman, my name is John R. Wiley. I am the director of aviation for the Port of New York Authority.

With the chairman's permission, I would like to make a brief announcement before I start my prepared statement.

This is a meeting conducted by the members of the Committee of the House of Interstate and Foreign Commerce, and the subcommittees thereof of the U.S. Congress, and is in true effect a public meeting on this airport.

I should like to say to all of those who have parked their cars in the public lots if they will see one of the port authority attendants as they leave the room they will be given a slip which will entitle them to free parking for having attended this meeting this morning.

The CHAIRMAN. Now, Mr. Wiley, the committee is concerned with the charges that have been brought, first, in the resolution by Mr. Bosch, and the allegations which Mr. Bosch, in his statement to the Rules Committee, and which he made to our own committee recently, and that has to do with what has been referred to as the jurisdiction over this problem.

Mr. Bosch has charged, No. 1, that there was no one with any jurisdiction under the law, and, if so, the buckpassing was going on in this area as it had for some time.

There has been also a charge by your port of authority here that certain of the airlines have failed to abide by certain regulations.

Now, this committee helped, and did its part, in writing the FAA Act. We know something about what it provides and what the jurisdiction is. We know something about the authority that is given under that act. Naturally, the committee wants to hear the problems that you are properly going to give us. But we also want to you to give this committee information regarding the charges that have been alleged in bringing this matter to our attention.

Mr. WILEY. Thank you, Mr. Chairman. I believe that the statement I have prepared, and which I will now proceed with, will bring those facts out.

On October 4, 1958, the first commercial jet passenger flight took off from New York International Airport, and landed at London Airport a little over 6 hours later.

Air travelers and the entire aviation industry had been eagerly awaiting that day, and the revolution in travel that jet transportation is expected to bring. The residents of the communities neighboring New York International and the other major airports throughout the country apprehensively awaited that day for they were concerned over the noise that they expected jet aircraft would create.

The port authority shared the concern of its neighbors in the vicinity of New York International Airport. Consequently in the public interest the port authority has devoted considerable time and money to protecting these communities. Its efforts contributed to a major degree toward the development of noise suppressors by aircraft manufacturers. It also instituted a valuable scientific study of jet noise. The use of suppressors together with certain flight procedures indicated by the noise tests enabled the port authority to announce on October 4, 1958, that the Comet IV and the Boeing 707 jets could operate at New York International Airport under specified conditions without subjecting neighboring communities to intolerable noise.

These conditions carry out longstanding port authority policy that the residents of communities in the vicinity of the airports must be protected. This policy has been in existence for 8 years—a long time in the aviation industry where progress is extremely rapid.

In 1951, when the present commercial jet aircraft were still being designed, the port authority board of commissioners adopted a regulation that is still in force which states, "No jet or turboprop aircraft may land or take off at an air terminal without permission." The regulation was deemed necessary on the basis of the noise history of military jets, both bombers and fighters.

The following year the port authority made a statement which called public attention to the jet noise problem. In September 1952, the then chairman of the port authority, and now the honorary chairman, Howard S. Cullman, speaking at the dedication of this control tower, looking ahead toward the jets that were then still on the drawing boards, said:

> It would be just as useless to design planes that cannot be operated into and out of metropolitan airports because of excessive noise or performance characteristics as it would be to design planes that cannot fly. Aircraft manufacturers have solved the problems which related to safety, efficiency, and speed of their planes. They must and they will solve these new challenges.

When this statement was made 7 years ago the airlines had not even ordered jets. But the noise of piston engine planes had caused complaints from airport neighbors and there was reason to believe that jets would be noisier. The port authority therefore, continued its attempts to enlist the cooperation of the airlines and manufacturers in coping with the noise problem.

During 1953 and 1954, our chairman made public statements, and our executive director and other members of the port authority staff made a number of speeches to aviation groups emphasizing the seriousness of the jet noise problem, particularly in the Metropolitan New York area. As far back as 1954 and 1955, there were talks on this subject to the Society of Automotive Engineers and Institute of Aeronautical Sciences chapters in Seattle and in Los Angeles. The audiences included many of the designers, engineers, and top executives of Boeing, Lockheed, and Douglas.

The port authority's policy regarding the use of its airports by jets attracted worldwide attention when the De Havilland Aircraft Co. requested permission for use of New York International Airport by one of the early unsuppressed models of the Comet aircraft, which was making its first visit to this country. The port authority refused such permission because of the exterior noise level of the aircraft. This refusal, incidentally, was attacked in the British press as an indication of the port authority's bias against British jets in favor of American jets.

Not long afterward, Boeing requested permission to come into New York International Airport with the unsuppressed prototype of its jet transport, which was making its first transcontinental trip. This permission was also refused.

The port authority's policy received considerable public attention again in October of 1955 when Pan American announced the first order for commercial jet aircraft. At that time the then chairman of the port authority, Donald V. Lowe, issued the following statement:

> The port authority assumes that Pan American would require from the manufacturers specifications which would assure that these aircraft could operate to and from New York International Airport without excessive noise characteristics that would be intolerable to the airport's neighbors. If Pan

American has such assurances, the port authority, of course, is delighted that this airline has been able to effect this forward step in the progress of air transportation.

Mr. Lowe then reiterated the stand which the port authority had taken in 1951 and in 1952 and said, "The port authority's position has not changed."

At the same time, the port authority began preparing to cope with the jet-age problem. To this end, the port authority retained the outstanding acoustical engineering firm of Bolt, Beranek & Newman, of Cambridge, Mass. The consultants were assigned the task of devising methods of measuring and evaluating aircraft noise so that when the airlines sought permission to use jets at New York International Airport, the port authority would have a sound scientific basis for its decision.

By this time, the port authority's stand, and similar stands taken by other airport operators elsewhere in the world, began to have some effect. The airlines began to require of the manufacturers who were building their aircraft that something be done to eliminate some of the noise at the source. Boeing and Douglas launched extensive research programs in this country and similar programs were launched in England to develop suppressors for jet engines so as to cut down their external noise output.

The port authority cannot take sole credit for this development. But it is a fact that our unwavering stand from 1951 on helped to bring about the practical interest in this problem which led to the development of noise suppressors. The suppressors on the Boeing 707, for example, according to Boeing, represent an investment of well over $10 million in research, development, and testing. Similar investments have been and are being made by Douglas Aircraft Co., Convair, Lockheed, and De Havilland. They also represent large expenditures by the airlines which must pay for and operate them.

The airlines have stated that such suppressors will increase fuel consumption and therefore constitute an economic penalty. Of course, pressurizing equipment, soundproofing, and other equipment placed on the aircraft for passenger comfort also causes an "economic penalty."

The culmination of the port authority's work on this problem is the findings which its consultants have made of the noise characteristics of the Boeing 707 and the Comet IV as compared to conventional propeller-driven aircraft. These technical reports are published in separate booklets which are each 375 pages long and which are complete with charts, graphs, tables, and diagrams. They are highly technical but they reduce noise to a meaningful measure; that is, they present a method for analyzing the noise characteristics of these aircraft as heard by the people in the communities adjacent to the airport.

One interesting aspect of the Bolt, Beranek & Newman reports on the Comet IV and the 707 is their findings regarding the comparability of jet aircraft noise and the noise of piston-engine aircraft. The conventional method of measuring noise is to measure the output of the sound in terms of energy. This measurement is essentially a measurement of sound-pressure level and is calibrated in decibels. Thus, when it was said that it would be necessary for jets to bring

their noise level down to that of piston-engine aircraft before they could use port authority airports, some people assumed that this meant that the aircraft would have to have the same or lower noise level as the piston-engine aircraft in decibels. However, it soon became apparent that measuring sound-pressure level did not necessarily measure annoyance value of sound.

We all know that high-pitched noise might very well be more annoying than a low-pitched noise of equal sound-pressure level. In the particular case of aircraft noise, our consultants soon determined by actual tests that a jet aircraft measuring 100 decibels of noise would sound much louder to the human ear than the sound of a piston-engine aircraft measuring 100 decibels of noise.

Our consultants have developed a series of formulas which would enable them to measure aircraft noises in terms of the way they would be heard by the human ear. This was a method of applying a correction factor to the decibel reading, a measurement of sound-pressure level, so as to arrive at a figure which would more nearly measure annoyance value of noise to the human being. They then coined the phrase "perceived noise decibels" to define the relative values of noise as heard by the human ear as compared with the "naked" decibel-meter measurement, which is a mechanical measurement of the sound-pressure level of noise.

This new concept of noise measurement meant that a jetplane, in order to be rated as equal to a piston-engine plane in perceived noise decibels, or human rating, would actually have to be a number of decibels lower in its actual noise output than the piston-engine aircraft.

The reports on the Comet IV and the Boeing 707 established that these jet aircraft could be operated at the airport under certain conditions and still be tolerable to the communities around the airport. It then became necessary for our engineers, in conjunction with airline operation people and acoustical experts, to determine conditions for the use of our airports by jets which would keep their noise level as heard in the communities down to a tolerable level.

Thereafter, Pan American Airways requested permission to operate the Boeing 707 at New York International Airport on a provisional basis. Its request set forth conditions relating to the use at the airport by its jet aircraft intended to minimize the effects of noise. Both the Boeing 707 and the Comet IV performed trial flights to and from New York International Airport under these controlled conditions, with port authority representatives closely monitoring the flights. The procedures first suggested by Pan American served as the basis for the conditions under which the port authority granted permission to Pan American and BOAC for the regularly scheduled operations of the Boeing 707–120 and the Comet IV, respectively, at New York International Airport beginning October 4, 1958. Last week, permission was granted to United and Delta for DC–8 operations subject to observance of similar conditions.

The conditions under which the port authority permits these jets to operate at New York International Airport include a mandatory runway use procedure that requires that jet aircraft use runway 25 or runway 22, for overwater takeoffs whenever wind and other conditions permit. When it is not possible to take off over water, then

and only then, takeoffs are permitted on runway 13–R, 31–L, or 7, but only on the condition that they be so planned and conducted that their noise level will not exceed 112 perceived noise decibels. In addition, takeoffs involving flights over communities are limited to the hours between 7 a.m. and 10 p.m. Takeoffs at night are permitted only over water on runways 22 and 25.

A copy of the conditions to the port authority's permission to the airlines to operate jet aircraft at New York International Airport is attached to this statement for the information of the committee.

A SPECTATOR. Mr. Chairman, in the interests of brevity—may I say something? I think Mr. Wiley will agree with me and your committee will agree with me.

The CHAIRMAN. I must have order, if you will permit.

A SPECTATOR. Aren't we going to be allowed——

The CHAIRMAN. The committee will be in order now. I am going to ask the guests who are here, and I must say you are here as the guests of the committee—if you will please permit us we are going to try to develop this the best way we can.

A SPECTATOR. Not by that way.

The CHAIRMAN. The gentleman may proceed.

Mr. WILEY. We sincerely believe that the full observance of these conditions by the airlines operating jet aircraft at New York International will permit the accomplishment of the dual objectives of meeting the needs of air commerce in the metropolitan area and the rights of the airport's neighbors to be free of intolerable noise conditions in their homes.

We agree fully with the airport neighbors that tolerable conditions do not exist at all times now and we are disappointed that American Airlines has not followed the procedures to make it possible to keep noise of its jet aircraft down to tolerable levels. But we are gratified that Pan American World Airways, British Overseas Airways Corp., and Aerolineas Argentinas are doing so as was National Airlines during the time it was operating jets. We are gratified also that Trans World Airlines has shown improvement in its conformance record in recent weeks following a meeting with top officials of that carrier to discuss some of the factors which have contributed to its failure to comply on many earlier flights.

This is the first summer of jet operations and we have been working with the airlines during the introductory period of jets to improve their conformance record and to provide improved facilities to make this possible. Our approach during this first summer of general jet operations has been one of attempting to observe, instruct, and encourage compliance, both by affording physical facilities which would make compliance easier and by calling attention to nonconforming flights and encouraging discussion of techniques to avoid recurrence. Specifically, we have done the following things in the provision of physical facilities to minimize noise:

1. We have extended runway 25 1,800 feet to the northeast to provide a total length of 10,000 feet on this runway to make it possible for jets to take off with maximum or near maximum gross takeoff weights on this highly desirable preferential runway with its takeoff path over the waters of Jamaica Bay.

Before that runway extension was made, that runway 25 had a length of 8,200 feet, approximately to the point that Mr. Goodman will indicate on the map. And it was not possible for the aircraft, when loaded to maximum or near maximum gross takeoff weight, to take off with that weight over the water of the bay. The addition of 1,800 feet made that possible.

2. In October of 1959, we will complete construction of a new instrument landing runway, 4–R–22L, which will be fully equipped by the Federal Aviation Agency by January 1, 1960, for instrument approaches from either direction. This runway will put aircraft approaching from the northeast over a park rather than over heavily congested areas in Laurelton, Rosedale, and Cambria Heights.

As you know, during most of July and August there was a combination of wind and weather conditions that resulted in a great increase in the number of aircraft landings on runway 22–R. Today when aircraft land on runway 22–R, they must follow a flight path over those areas of the communities of Laurelton, Rosedale, and Cambria Heights nearest the airport. During July and August we had many days of humid hazy weather with restricted visibility which required a much greater than usual percentage of aircraft to make instrument landings and, in addition, we had prevailing winds from the south and southwest requiring the use of instrument runway 22–R resulting in a landing approach over the areas above described. We hope, of course, that we will not again have such an extended period of such weather but even if we should next summer or any time after new instrument runway 22–L is fully implemented, it should not so seriously affect the residents of these areas.

3. On August 13, 1959, the port authority announced that it was starting to extend runway 13–R—31–L 3,350 feet to the southeast which will provide a total length of 14,600 feet on this runway. This will permit jets, and piston engine aircraft also, to gain greater altitude over the communities of Howard Beach, Ozone Park, and South Ozone Park to the west of the airport and thus reduce noise in those areas. This work will be completed in the fall of 1960.

So much for the improved physical facilities. In attempting to discharge the second part of our approach to the solution of the noise problem, we have taken the following steps:

1. We are monitoring each jet takeoff with sound measurement teams and sending each aircraft operator a daily report of each takeoff. Copies of this report will be passed to the members of the committee. Each month we summarize the results and send them to the communities and to the airlines. An example is the letter which was sent out on September 3—to the community leaders and to the airline officials. With your permission, I should like to read that letter, if I may, into the record.

I am pleased to report an encouraging improvement in airline conformance with our special noise reduction jet takeoff procedures during the month of August. The record for all airlines combined shows 74.7 percent conformance during August compared with 70 percent in July and 59 percent in June.

Especially pleasing is the improvement in Trans World Airlines' record. You will recall that in my letter of August 13 I cited TWA as one of the two airlines that had had particularly poor conformance records during July. Since then we have had a series of discussions with TWA to clear up some of its misunderstandings that had contributed to its failure to comply on many flights,

and as a result of our discussions TWA has recently markedly improved its record. It conformed on 68.3 percent of its jet takeoffs during August, compared with 59.6 percent conformance during July. Conformance on only 68.3 percent of its takeoffs is still far below an acceptable level, of course, but I am sure you will understand that it will take some time for TWA to indoctrinate all its pilots. Its improvement during August, however, is significant as an indication that TWA is heading in the direction of jet operations that will be tolerable to the communities neighboring New York International Airport.

American Airlines, then, remains as the one jet operator with a completely unacceptable conformance record and no clear signs that it is making any real efforts to protect the airport's neighbors from excessive jet noise. American conformed on only 64.3 percent of its jet takeoffs during August, which reflects practically no improvement over its 63.3 percent conformance record in July and its 59.3 percent conformance record since the beginning of its jet operations. Furthermore, we have had no assurance whatsoever from American that it is disposed to take any positive steps to improve its record.

In the best interests of all concerned, we will continue to make every effort to persuade those responsible for American Airlines' operations to make a conscientious effort, as other airlines are doing, to conduct their operations in accordance with port authority rules and procedures. On the August record of American Airlines, which it is my unpleasant duty to submit to you here, their operations are being conducted in willful disregard of the public welfare as respects conformance with the port authority's jet noise reduction procedures.

Aerolineas Argentinas, British Overseas Airways Corp., and Pan American World Airways improved their already excellent records during August. Aerolineas Argentinas and British Overseas Airways Corp., conformed on all their takeoffs and Pan American conformed on 91.8 percent of its takeoffs, compared with its record of 85.4 percent conformance during July.

Jet landings, which are not covered by our special noise reduction procedures, continued to be a major problem during August. In connection with this, it is encouraging to note that several of the airlines are aware of the seriousness of the landing noise problem and that they are anxious to reduce it. At a recent meeting, Capt. Harold E. Gray of Pan American World Airways suggested that steps might be taken to provide altitude guides for jets on landing so as to reduce the noise in the communities caused by these operations. It was the consensus of the various airlines represented at the meeting that they should be able to come to some solution in a few weeks. I hope that I shall have something positive to report on this in my next letter.

Mr. FRIEDEL. What was the date of that letter?

Mr. WILEY. That was September 3, 1959.

We have sent the carriers a simplified runway selection chart according to wind direction and velocity to make it easier for them to select the preferential runway from a noise point or view. Copies of this either have been or will be distributed to the committee for their information.

This program has been successful with most of the airlines flying jet aircraft at the airport. Up until recently, the conformance record of two of the airlines had fallen short of what we consider possible and reasonable; however, in recent weeks one airline has markedly improved its record of compliance and we are continuing our efforts to improve the record of the other. We know this can be done because other airlines are doing it at New York International Airport.

Specifically, when we see airline A take off on runway 25 over water with no annoyance to neighbors and minutes later, airline B, with the same wind and weather, takes off on a runway that leads near a community, we feel there is still room for improvement and we are working with the airlines to try to obtain that improvement.

Again, when we see a jet of airline A take off weighing say 200,000 pounds, and we get a noise reading in excess of tolerable levels and then 3 minutes later another jet of the same airline A takes off on the

same runway with the same wind and weather but weighing 235,000 pounds and this second jet does a good job of noise abatement, we know that the job can be done and that more education and spreading of the word is necessary. We are making every effort to do just this and we hope that the airlines will accept the seriousness of the problem and take steps to monitor the procedures used on each flight and to brief and train all their people in noise reduction measures.

In his recent statement before this committee, Mr. Stuart Tipton, president of the Air Transport Association, stated that pilots do not have any means of telling how much noise their aircraft are making on the surface of the ground below their flight path on a takeoff from an airport. I should like to point out to the committee that at the time permission is granted to any airline to operate jet aircraft at New York International Airport, that airline is furnished with a copy of the Bolt, Beranek, and Newman noise studies referred to previously which contain charts that indicate noise generated on the ground for any conditions of power setting and altitude.

With the construction program of physical facilities that the port authority is accomplishing with the cooperation of the airlines and if the airlines improve their compliance with the port authority's jet noise reduction measures, we feel that it will be possible for the needs of air commerce in this great metropolitan area to be served without annoying the airport neighbors beyond a tolerable level.

Our General Counsel advises that the port authority has the power to enforce its regulations regarding the use of the airport by jet aircraft. If it became necessary in order to procure compliance to withdraw the permission granted, that would be within the port authority's power. However, withdrawing permission to a nonconforming airline to use the airport for any of its jet operations is an extreme sanction. It would prevent a substantial number of operations which do conform and would deny air transportation to the traveling public which doesn't share any responsibility for violations. Naturally, we would approach the consideration of such withdrawal of permission with great caution.

In summary, the Port of New York Authority pioneered in the recognition of the problem of aircraft noise in communities adjacent to airports and by its early firm stand on this matter contributed heavily to the development of suppressors which are now installed on all currently operating jet transport aircraft. The port authority also caused scientific studies of noise to be made which permitted the development of standards in this highly technical and complex field. We have only to look out of the windows of this room where we are meeting to see the evidence of construction of facilities which will help to reduce noise in the communities. If the airlines will make full use of those facilities and will faithfully conform to the port authority's jet noise reduction procedures, we believe the requirements of air commerce can be met without infringing on the rights of our airport neighbors.

Thank you, Mr. Chairman.

The CHAIRMAN. Does that complete your statement, Mr. Wiley?

Mr. WILEY. Yes, sir.

A SPECTATOR. May I say for the record, Mr. Chairman——

The CHAIRMAN. May we have order? I ask the gentleman to take his seat now. The committee must maintain order.

A SPECTATOR. But you took 32 minutes to make that address. I timed it; 32 minutes wasted with a lot of nonsense.

The CHAIRMAN. Again, I respectfully suggest that we maintain order in this hearing. The committee is going to make every effort to get all the information we can. You people, I think, could be very helpful to us by your cooperation.

Mr. Williams, any questions?

Mr. WILLIAMS. Mr. Wiley, the latter part of your statement says that, "We have but to look out of the windows of this room to see evidence of construction facilities which will help reduce noise in the communities." What type of facilities are those?

Mr. WILEY. That, sir, if we could look out the window here, if the blinds were up, you could see the extension on runway 25 that I referred to before.

Mr. WILLIAMS. Those are the facilities that you make reference to?

Mr. WILEY. That is one of them. The other one is the new instrument runway now under construction. And the other one is the extension of runway 31, left to the southeast. I understand, Mr. Chairman, that it is the desire of the committee to take a tour of the airport at some time during the day, and I am pleased to tell you that transportation is arranged for that, so you can physically see those facilities on the ground.

Mr. WILLIAMS. One further question, Mr. Wiley. Please turn to your statement. I refer to the next to the last paragraph. You take the hypothetical base of airline A takeoff on runway 25 over water, with no annoyance to neighbors, and minutes later airline B with the same wind, the same weather, takes off on a runway that leads near a community. You say, "We feel there is still room for improvement." If a plane takes off from the runway, he is under the control of the tower, isn't he?

Mr. WILEY. Yes, sir.

Mr. WILLIAMS. He takes off on the runway which has been assigned by the tower?

Mr. WILEY. The pilot has some measure of authority to request a change in runway from the tower.

Mr. WILLIAMS. I understand that. But he is subject to the control of the tower.

Mr. WILEY. Yes, sir.

Mr. WILLIAMS. To what extent has the port authority cooperated with the Federal Aviation Agency in requesting that the Agency exercise their control over aircraft with the thought in mind that the noise should be held to a minimum?

Mr. WILEY. Fully, if I may say so, Mr. Williams. We have worked very closely with Mr. Joseph Blatt, the Regional Administrator of the FAA in this area, and I may say that the runway selection chart that is used by the tower operators is practically the same—there are a couple of small deviations from it—as that prescribed in the port authority conditions precedent to the granting of permission of the airlines to use the airport for jet operations. I believe when you hear from Mr. Blatt, I believe he will confirm that.

Mr. WILLIAMS. Thank you, sir. However, the hypothetical case that you mention here, of airline A taking off on runway 25, with the same wind and weather, and so forth, and airline B takes off on another runway—airline A doesn't cause any annoyance, and airline B does——

Mr. WILEY. Yes, sir.

Mr. WILLIAMS. Then the fact that that airline was permitted to take off on runway B—a different runway—would obviously place the blame for the annoyance on the control tower operators, wouldn't it?

Mr. WILEY. Not necessarily, sir. It might have been a pilot request. And the control tower would grant that request, if it could be done without infringing on safety. I believe Mr. Blatt will confirm that when he makes his statement before you.

Mr. WILLIAMS. Safety is the only criteria that is followed in the assigning of these takeoff runways?

Mr. WILEY. I would prefer Mr. Blatt answer that because I am now speaking in his bailiwick, and I would rather not speak in his bailiwick, in the matter of assignment of runways.

Mr. WILLIAMS. All things being equal, and it is merely a question of preference of the pilot to take off on a different runway than that assigned to him, and safety is not involved, then am I to understand that the noise abatement problem is not taken into consideration with regard to granting that request?

Mr. WILEY. Mr. Williams, in some instances, it is my unpleasant duty to say to you that this is true, that it is not always taken into account. Now, I am not saying that it is not taken into account by the FAA tower controller. The situation that is spelled forth here, the two situations spelled forth here, are actually taken from my daily analysis of these flight performance records that we send to the airlines each day. And as I go through these each day, I personally sign them and review the circumstances reported on this form. And I picked out these two instances here from my daily scanning of these reports. This is what actually happened.

Mr. WILLIAMS. I wasn't attempting to embarrass you by asking those questions, but merely asking in the interest of seeking information.

Mr. WILEY. Yes, sir.

Mr. WILLIAMS. Thank you very much.

The CHAIRMAN. Mr. Derounian?

Mr. DEROUNIAN. Mr. Wiley, on page 8 of your statement, you say that—

Our approach during this first summer of general jet operations has been one of attempting to observe, instruct, and encourage compliance.

Now, I ask you why don't you order compliance instead of encouraging it? Further on page 11 you admit that your general counsel has advised that the port authority has the power to enforce its regulations regarding the use of the airport by jet aircraft. I agree that a reasonable time for observance of the airport rules should be given and the airlines have had plenty of time. I think you will find, if you cut off the dollar flow from these violating airlines, you would be surprised how fast they would comply.

I say that sincerely, Mr. Wiley. That is our problem here. It is a concern of mine, too, because these folks here, I think, are rightly exercised. Their children can't sleep at night.

Mr. WILEY. I certainly agree with what you said, Congressman Derounian. Last Friday night we had a protest made on the airport of some of the neighbors in the vicinity. One of the good people from around the airport who organized that cavalcade that came on the airport had this to say. I quote from the Herald Tribune of Saturday.

We all realize the jet age is here to stay, but we want the pilots to stop hedgehopping over our homes.

Now, we have had many letters of complaints from the good people living around these airports, and they are good, reasonable letters, voicing a complaint over conditions in their homes that are intolerable. But the majority of those letters that we get say that we are not opposed to aviation, we realize the benefits that aviation brings, but we want the airplanes to operate in conformity with our rights to enjoy the peace and quiet of our homes.

In addition to that, we must remember that the port authority as a public agency, created by acts of the legislatures of the two States, and approved as such treaties must be by Congress, gives the port authority the mandate to promote and protect the commerce of the port, and to operate needed public transport and terminal facilities.

Well, it is a tough job to walk that narrow line of providing those facilities and providing the facilities for operation, to foster air commerce, and at the same time to recognize the rights of the people living around the communities. We are trying to foster that, and to develop this introductory period of jets. Certainly if compliance is not achieved in the ultimate, we must take the drastic steps that have been suggested. We are hopeful that we can achieve it without the necessity for that.

A SPECTATOR. How long?

The CHAIRMAN. I am going to have to insist on order in this room if we are going to continue with this hearing. I hope you people who are here, as I say, as guests of the committee, will respect the committee in this regard. Now, we have held executive sessions on this subject, and to get information we can hold more executive sessions. It occurred to us that you might like to have the benefit of this.

Mr. DEROUNIAN. Mr. Wiley, it is all agreed that American Airlines is the violator, the main violator at this moment?

Mr. WILEY. At this moment that is true, although TWA has shown improvement, they are not quite up to where they should be yet.

Mr. DEROUNIAN. All right. What would be wrong if you said to American Airlines and to TWA, "This is it. Unless we get complete compliance as by the other three airlines, we are going to shut down starting this Thursday." Now, what would be wrong with your doing that?

Mr. WILEY. Mr. Derounian, it is a drastic step to take, because we must remember that not only are the traveling public, but also the movement of the airmail and aircargo are involved in such a step as well. So it is a drastic step, requiring the most thorough consideration before a step of that nature is taken.

Mr. DEROUNIAN. But, to me, these two airlines appear to be thumbing their noses at you, and they appear to be arrogant, from your own information. And I just wouldn't stand for it.

Mr. WILLIAMS. Will the gentleman yield for one question? Is there an alternate airfield or airport in this area that can accommodate these jet aircraft?

Mr. WILEY. Not in the immediate metropolitan area, that would have the runway lengths that are required for the jet operation; that is, not a commercial airport would do that.

Mr. WILLIAMS. Is there a military airport?

Mr. WILEY. Down at McGuire Air Force Base, but it is quite far away from New York.

The CHAIRMAN. Mr. Moulder?

Mr. MOULDER. No questions, Mr. Chairman.

The CHAIRMAN. Mr. Bush?

Mr. BUSH. Mr. Chairman, I just have one question. Mr. Wiley, in your statement you stated that takeoffs involving flights over communities are limited to the hours between 7 a.m. and 10 p.m.

Mr. WILEY. That is of jet airplanes.

Mr. BUSH. Takeoffs at night are permitted only over water on runways 22 and 25?

Mr. WILEY. That is correct.

Mr. BUSH. Now, are there objections to these takeoffs on these runways 22 and 25?

Mr. WILEY. Not over water. I know of no objections to takeoffs over the water.

Mr. BUSH. Is it possible to arrange the schedule so that you could use that same runway during the daytime, when you complete the job of extending its length?

Mr. WILEY. Those runways are the first preferential runways to be used over the water as much as possible, whenever the wind and the weather will permit it, without creating an unsafe condition. I am not sure that I quite follow the rest of your question, sir.

Mr. BUSH. Well, I wondered if they are building an extension.

Mr. WILEY. Yes; we are building an extension on this cross runway that I referred to before, and that will markedly improve or decrease the noise situation in the communities to the west of the airport.

Mr. BUSH. How long will it be before that is finished?

Mr. WILEY. That runway extension will be completed, sir, in the fall of 1960.

Mr. BUSH. Thank you.

The CHAIRMAN. Mr. Friedel?

Mr. FRIEDEL. Mr. Wiley, on page 2, first paragraph:

> In 1951, when the present commercial jet aircraft were still being designed, the port authority board of commissioners adopted a regulation that is still in force which states, "No jet or turboprop aircraft may land or take off at an air terminal without permission." The regulation was deemed necessary on the basis of the noise history of military jets, both bombers and fighters.

And then on page 7 you mention the hours between 7 a.m. and 10 p.m. I gather from that that some flights do land after 10 p.m.

Mr. WILEY. Land, yes, sir. This respects only takeoffs. And may I say also that there have been a few instances of a takeoff that has been permitted after 10 p.m. I should be less than frank with the committee if I did not say so. There have been some instances of takeoffs after 10 p.m. on other than the over water runways in a situation where a complete passenger load was available on the air-

port to depart, and there was a delay in either loading or mechanical malfunction or something, that delayed past the 10 o'clock departure.

Mr. FRIEDEL. Well, what complaints have you received the most for—night flying, or just jet aircraft entirely?

Mr. WILEY. Landings.

Mr. FRIEDEL. Well, I just want to offer a little simple solution that I think I mentioned before the committee the other day, that if it is the landing noise, we have a wonderful airport not too far from here, Friendship Airport, and we can take all the noise and all the oversea planes. We fly the jets out of Friendship—American Airlines and TWA, nonstop flight, long runways. So if you—send them all to Baltimore. I think that is a solution—if you can't get the cooperation from the airlines, and they won't have to go out of business. They can go right into Friendship. And it has happened on numerous occasions when weather conditions around Idlewild were bad, they did land at Friendship.

A SPECTATOR. Mr. Chairman, may I——

The CHAIRMAN. I suggest we have order in this room.

A SPECTATOR. May I ask a question?

The CHAIRMAN. Will the lady please be seated? We must conduct this committee hearing in orderly form.

Any further questions?

Mr. FRIEDEL. Just one more question, and I will be through.

Do you have any complaints from the jet planes taxiing out for their takeoff?

Mr. WILEY. I have not—I don't know of any extensive complaints. I think there have been some, but I don't know of any extensive complaints.

Mr. BOSCH. Will the gentleman yield?

Mr. Wiley, isn't it a fact that since the extension of runway 22, we had a demonstration not so long ago of a jet that hit the barrier when it was landing?

Mr. WILEY. I think that may be 25.

Mr. BOSCH. No; it is 22.

Mr. WILEY. Runway 22 hasn't been extended, sir; 25 is extended.

Mr. BOSCH. Well, is it 22 where the jet went back and hit the barrier?

Mr. WILEY. No, sir; that is on 25.

Mr. BOSCH. All right. Then I am mistaken on that. Now, when they go out over 25, they go over the area of Rosedale, Springfield Gardens, and so forth?

Mr. WILEY. No, sir; when they are on 25, they go out over the water.

Mr. BOSCH. Then it had to be 22 that was involved in this particular situation, because at that time you remember the people complained about the fumes that came from the jets that were starting the takeoff from that particular point—the jet stream and smoke from the power went on Rockaway Boulevard, the people couldn't drive through. Was that 22 or 25?

Mr. WILEY. That is 25, sir, because we put the barrier up at the end of 25.

Mr. BOSCH. OK.

Mr. FRIEDEL. That is all, Mr. Wiley.

Mr. DEVINE. I have just two questions, Mr. Chairman. First, Mr. Wiley, why do your regulations apply just to takeoff and not to landings?

Mr. WILEY. Mr. Devine, the question of landings is a very difficult one, because the situation you have there is an aircraft up in the air that has to find a haven. The procedures by which that airplane approaches the airport, particularly under instrument conditions, are pretty well standardized by the Federal Aviation Agency, because they must follow a glide slope to that runway, which is an electronic device to guide the pilot down a prescribed glide slope. That slope is about—just under three degrees, off the horizontal. And it is very difficult, frankly, to find any way in which the aircraft can be made more quiet on landing, because of these—let us say, the design characteristics of the aircraft, where it must follow this flight path down to the airport.

Now, there are certain things that can be done, and that is to intercept the glide path at a higher altitude, and to come down the glide path with somewhat reduced power.

Mr. DEVINE. Is that not controlled by the terminal tower operator—the runway that they are going to approach?

Mr. WILEY. Yes, by the FAA, that is correct.

Mr. DEVINE. The only other question I have at this time, Mr. Wiley, is this. Don't you think that nearly a year is long enough a test period for enforcing compliance with the regulations?

Mr. WILEY. Well, under ordinary circumstances I would say very definitely yes. But, remember, that this has a tremendous effect, not only on the commerce of this area, but it has a tremendous effect on worldwide commerce, and it is drastic sanction.

A SPECTATOR. The public be damned.

Mr. FLYNT. I have no questions, Mr. Chairman.

Mr. HEMPHILL. No questions.

Mr. BROCK. No questions, Mr. Chairman.

The CHAIRMAN. Mr. Bosch?

Mr. BOSCH. I appreciate, Mr. Chairman——

The CHAIRMAN. We will extend you the courtesy today.

Mr. BOSCH. All right. I think that Mr. Wiley, if he has done anything, has substantiated the charges I made before the Rules Committee.

Let me go back to the assertion you made in 1958——

The CHAIRMAN. Will the gentleman yield to me?

Mr. BOSCH. Yes.

The CHAIRMAN. I do not think that the record should go unanswered on that. The gentleman made charges before the Rules Committee that there was conflict of jurisdiction on the problem. That has not been developed here yet.

Mr. BOSCH. All right. I will try and develop it now.

The CHAIRMAN. As to the problem itself, I think that is agreed to.

Mr. BOSCH. Mr. Wiley, in 1958, when the Port of New York Authority deemed it necessary to set down certain rules with regard to jet operation at Idlewild, what was the reaction of the Federal Aviation Agency at that time?

Mr. WILEY. This was in 1958, sir, when those rules were—those rules were checked with the regional administrator of the FAA at

that time. He said that he, in general, concurred with them. That insofar as they pertained to noise itself, his responsibility, as he visualized it at that time, extended only to the question of safety. In other words, his mandate was to see that operations were conducted safely.

Mr. BOSCH. In other words, he thought that the noise problem was a local problem?

Mr. WILEY. In effect, yes. He was sympathetic with it. But he said that his jurisdiction applied primarily to safety. But he didn't disagree with what we proposed to do.

Mr. BOSCH. Well, isn't it a fact that the Administrator said at that time that he would do everything to eliminate these rules and regulations which you were trying to set with regard to jet operation?

Mr. WILEY. I believe that the Administrator was quoted in the press as having said that on a visit here last fall.

Mr. BOSCH. Now, this is not a new problem? I mean the jetplanes have just aggravated a problem that has existed for years?

Mr. WILEY. Yes.

Mr. BOSCH. This is not a question of property values. This is a question of human values; isn't it?

Mr. WILEY. Yes, sir.

Mr. BOSCH. It seems to me that if the Port of New York Authority has jurisdiction over the port—I said this before the committee, and I repeat it now—that I would be one of those who would say that the lease of any airline that failed to comply with the regulation should be canceled forthwith.

Now, these monitoring devices that you have in the airport—I understand there are four of them; is that right?

Mr. WILEY. It is a crew, sir, that goes around to points under the takeoff path of each takeoff, and records the noise of each takeoff. And they form the basis for these reports that were sent to the airlines each day.

Mr. BOSCH. Now, Mr. Wiley, if the airlines were to comply with the rules—I don't want to call them regulations, but I will call them rules—and went over the Jamaica Bay and the Rockaway Inlet, by the time they got to the flight pattern 3.8 from the airport, they would be somewhere between 1,100 and 1,400 feet in the air, wouldn't they?

Mr. WILEY. As a general rule, yes.

Mr. BOSCH. So that in a nutshell is our entire problem, is it not? As you say in your statement, you say that on runway 25, for instance, a plane with 200,000 pounds reaches the level or the height which prevents any noise as far as the community is concerned. On page 11——

Mr. WILEY. Yes. There is no problem, Mr. Bosch, on takeoffs on runway 25 that you refer to, because that is over the water, and there is no community underlying that flight path for a distance of 7 miles, going out over the bay, in that direction.

Mr. BOSCH. Yes. But they go the other way, too, don't they?

Mr. WILEY. Yes. On runway 7, going the other way.

Mr. BOSCH. Well, all right. Now, as you say here on page 10:

Again, when we see a jet of airline A takeoff weighing say 200,000 pounds, and we get a noise reading in excess of tolerable levels and then 3 minutes later another jet of the same airline A takes off on the same runway with the same wind and weather but weighing 235,000 pounds and this second jet does a good job of noise abatement.

Mr. WILEY. Yes.

Mr. BOSCH. Now, isn't there some particular authority that your Agency has to prevent the violation of this regulation?

Mr. WILEY. Of course, when we find out about it, sir, it is after the fact, because the airline has taken off.

Mr. BOSCH. It always has to be after the fact. It can never be before the fact.

Mr. WILEY. Our monitoring occurs as the airplane takes off. However, this gives us the basis of understanding what combinations of wind, weather, weight, and so forth will make it possible for an airplane to conform.

Mr. BOSCH. Well, I think you will agree with me——

Mr. WILEY. It is experience from that we are trying to draw on to find out under what circumstances it is possible to comply, and under what circumstances it cannot be complied with.

Mr. BOSCH. Well, it seems to me, as you point out so ably in your statement, certain airlines can comply, then all airlines should be able to comply.

Mr. WILEY. I agree.

Mr. BOSCH. That is all.

The CHAIRMAN. Mr. Wiley, have you encountered any conflict of jurisdiction between your authority in the operation of the airport and the Federal Aviation Agency?

Mr. WILEY. None whatsoever. In certain instances, as referred to last year, where we were promulgating these regulations, that perhaps went further than the FAA's regulations, or procedure did at that time, we had nothing but cooperation from the regional administrator. He, in effect, said, "My mandate is safety. This goes a bit beyond our mandate, but we do not object to it."

The CHAIRMAN. Now, Mr. Wiley, your port authority has the jurisdiction over the management of the airport; is that true?

Mr. WILEY. Yes, sir; that is right.

The CHAIRMAN. And not only this airport, but other airports within the area?

Mr. WILEY. Besides New York International Airport, LaGuardia, Newark, and Teterboro.

The CHAIRMAN. You have the authority to lease the space?

Mr. WILEY. Yes, sir.

The CHAIRMAN. And to administer the airport itself?

Mr. WILEY. Yes, sir.

The CHAIRMAN. In accordance with the purposes for which it was established?

Mr. WILEY. Yes, sir.

The CHAIRMAN. Now, the Federal Aviation Agency has charge of the control tower operations?

Mr. WILEY. Yes, sir.

The CHAIRMAN. Safety matters involving the ingress and egress of airplanes?

Mr. WILEY. That is right, sir.

The CHAIRMAN. And each understands, then, full well what your respective jurisdiction is?

Mr. WILEY. Indeed, we do, sir. We work very closely with the Federal Aviation Agency at all times.

The CHAIRMAN. Now, there was a great deal of complaint brought to our attention about permitting so many people to come on the airport, when there was a jet 4 hours in the air trying to get down. Are you familiar with that incident?

Mr. WILEY. Very much so, sir.

The CHAIRMAN. Was that a fact?

Mr. WILEY. There were a lot of people that came on the airport that night in response to the repeated broadcasts that were made announcing that this airplane was circling overhead, and would in the course of a few hours make a rather spectacular landing, to say the least. And I am happy to say to you, though, that I was on the field that night, and I can say to you, as was brought out in the official CAB hearing into this incident, that at the time that aircraft was landed, there was nobody within an unsafe distance of that runway, so that the landing could be effectuated in safety. This was borne out by the testimony of the Federal Aviation Agency officials at that hearing, and by the testimony of the representatives—the pilot of the aircraft, and the representatives of Pan American.

The situation resulted in an unprecedented interest in that situation that night that attracted a lot of people, because of these repeated television broadcasts. When they came on to this public airport, we adopted the military technique of defending a perimeter which you can defend. Now, the most important perimeter that we had to defend that night was the perimeter involving the actual runway where that landing was to take place. If I may step to the map for just a minute and point this out to you—the aircraft actually landed on this runway, and came to rest at about this point here. The perimeter that it was essential to defend at that time in the interests of safety was this area in here, where my hand is going there. Actually, all personnel, except the authorized firefighting units, were held on the line of this taxiway, which is known as taxiway Q, to give plenty of room in case that aircraft should veer off the runway.

The CHAIRMAN. Why did you permit people on the airport at all?

Mr. WILEY. It was impossible, sir. We have a perimeter here of 18 miles. While it is true that it is fenced all along the perimeter here, there must, of course, be access where the major boulevards come into the airport here and here. And people would park their cars outside the airports, slip around the edge of the fences, or in some cases climb over the fence. We actually had people arriving by rowboat and motorboat on this perimeter of the airport. It was a very unusual situation. It was the first time it ever happened to my knowledge.

And yet, I think it was due to the great publicity that was given this, under the peculiar circumstance of the aircraft having to circle for 4 hours.

The CHAIRMAN. Well, who was responsible for all this publicity going out?

Mr. WILEY. Well, it is impossible, sir, to—nobody from the port authority released any of that information to the press. The press maintains radios in their press room on which they monitor tower frequencies, and they could hear the conversation going back and forth. Besides which, anybody can buy a radio set to the tower frequencies and monitor it, and hear the preparatory statements being made.

The CHAIRMAN. Of course, I have my own views and ideas about the broadcasting facilities aggravating a situation like that. It seems to me totally irresponsible so far as the public is concerned. But the purpose of this hearing here today is with reference to authority and jurisdiction. It was the authority of the Port Authority of New York to control and handle that particular situation.

Mr. WILEY. Yes, sir.

The CHAIRMAN. And it was the duty and responsibility and authority of the FAA then to bring that plane in.

Mr. WILEY. That is right—when the runway had been foamed as requested by the pilot, and when the airport authority could assure the FAA that the runway and the area immediately around it were clear, so that a landing could be safely made. And that was done. That was done without incident, I am reminded.

The CHAIRMAN. Well, that is a very gratifying thing that it was done without incident. And I am sure we all learn by experience. We certainly hope such will not be repeated.

A SPECTATOR. Mr. Harris, can I ask a question, please?

On this subject of authority——

The CHAIRMAN. Just a minute. We just have one witness at a time now.

A SPECTATOR. I thought you were through with him. I am sorry.

The CHAIRMAN. Are there other questions of Mr. Wiley?

Mr. HEMPHILL. Mr. Chairman, I noticed at the bottom of page 11 the statement that general counsel for the port authority had advised that "the port authority has the power to enforce its regulations regarding the use of the airport by jet aircraft." Now, would there be any objection on the part of the port authority to furnishing us that opinion, as to the authority that the port authority has?

Mr. GOLDSTEIN. No, sir, there would be no objection at all, Mr. Congressman.

Mr. HEMPHILL. Mr. Chairman, might that be included in the record at this point?

The CHAIRMAN. Without objection, let the general counsel's opinion be included in the record.

(The opinion referred to is as follows:)

THE PORT OF NEW YORK AUTHORITY,
LAW DEPARTMENT,
New York, N.Y., October 30, 1959.

Hon. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives,
House Office Building, Washington, D.C.

MY DEAR CONGRESSMAN HARRIS: This has reference to your letter of October 20, 1959, addressed to Mr. John R. Wiley, director of aviation, with respect to Congressman Hemphill's request for the submission, for the record of your committee, of my opinion regarding the port authority's power to enforce its regulations.

I am pleased to advise you that I have advised our commissioners that the port authority, as operator of New York International Airport, has the power to adopt regulations designed to insure that the noise produced by jet-powered aircraft using the airport would prove tolerable to people residing in communities surrounding the airport and not create an unlawful nuisance or otherwise unreasonably annoy or disturb others. I have further advised them that this power inheres in the very nature of property ownership or control, and unless surrendered by contract, is possessed by all owners or operators of real property. There has been no surrender of this power in the applicable airline

leases at the airport. Indeed, the very leases with the airline tenants at New York International Airport confirm the port authority's right in this respect. Furthermore, the regulations of the port authority regarding jet aircraft neither conflict nor are in any other way inconsistent with Federal flight control in the interests of air safety—in fact, the port authority regulations insist that all Federal safety regulations must be complied with.

In this connection your committee might also be interested in the enclosed copies of the port authority's resolutions governing the use of the airport by jet aircraft. It is pursuant to these resolutions that permission was granted for the use of the airport by jet aircraft, subject to certain enumerated conditions.

With kind regards.

Sincerely yours,

SIDNEY GOLDSTEIN, *General Counsel.*

(Enclosures: Extracts from minutes of operations committee meetings of April 29, and September 3, 1959.)

SPECIAL MEETING. OPERATIONS, APRIL 29, 1959

1. New York International Airport—Conditions for operation of Boeing 707–120 and Comet IV aircraft

The assistant executive director recalled to the committee that at its meeting on October 2, 1958 resolutions were passed granting permission to British Overseas Airways Corp. for the operation of Comet IV aircraft equipped with Rolls-Royce Avon RA–29 engines and suppressors and to Pan American Airways for the operation of Boeing 707–120 aircraft powered powered by JT–3–C–6 engines equipped with Boeing FS–152 noise suppressors and setting forth conditions under which these types of aircraft would be permitted to operate at New York International Airport. Subsequently, permission on the same basis was granted to American Airlines, National Airlines, Trans World Airlines, Aerolineas Argentinas, and the Department of Defense.

The assistant executive director also recalled that the original conditions permitted the use of runway 25 provided the crosswind component for the Boeing 707 did not exceed 26 knots and, in the case of the Comet, did not exceed 20 knots. Thereafter, the minimum crosswind component was reduced to 13 knots.

The assistant executive director also recalled that at its meeting on March 5, 1959 it was reported to the committee that the resurfacing of certain portions of runway 7–25 and the intersection of 7–25 and 4–22 was required. The committee recommended to the board that the board authorize this work to be done immediately. At its meeting on March 15, 1959, the board authorized this work. Performance of this work made it impossible for the airlines to continue the use of runway 25 as a mandatory preferential runway and it has been used as a preferential runway when available. It is now anticipated that the work will be completed by the end of this week and runway 25 can then be reinstated as a mandatory preferential runway.

The assistant executive director recommended that with the reinstatement of runway 7–25 it appears desirable to simplify the statement of procedures set forth in the committee's resolutions of October 2, 1958 while retaining the basic conditions for the achievement of noise reduction.

The committee has power to act in this matter under article XI, paragraph D–8, of the bylaws.

Whereupon, the following resolution was unanimously adopted:

"Whereas the committee by resolutions dated October 2, 1958, granted permission to operate the Comet IV aircraft equipped with Rolls-Royce Avon RA–29 engines with suppressors and the Boeing 707–120 powered by JT–3–C–6 engines equipped with Botein FS–152 noise suppressors, in scheduled service at New York International Airport, subject to specified conditions designed to insure that the aircrafts' noise characteristics would prove to be tolerable to the people in the communities surrounding New York International Airport; and

"Whereas the conditions contained in the aforementioned resolutions dated October 2, 1958, were based on the findings of the acoustical consultant firm of Bolt, Beranek & Newman, Inc., contained in the form of two studies entitled "Studies of Noise Characteristics of the Boeing 707–120 Jet Airliner and of Large Conventional Propeller-Driven airliners," dated October 1958, and "Studies of Noise Characteristics of the Comet 4 Jet Airliner and of Large Conventional Propeller-Driven Airliners," dated October 1958, which studies, after concluding

that the higher frequency of the noise produced by jet aircraft had a much greater annoyance impact upon human sensibilities than the noise produced by piston engine aircraft at the same overall sound pressure levels, developed a new measuring standard termed "perceived noise decibels" (PNdb) designed to measure on the same scale the annoyance impact on the human ear of complex noises having different frequency components; and

"Whereas the conditions in the October 2, 1958 resolutions require that whenever runways 13–R, 13–L and 7 at New York International Airport are used by Boeing 707–120 or Comet IV aircraft, powered and equipped as aforesaid, the takeoffs must be so planned and conducted that such aircraft will not fly over any community underlying the flight path at an altitude of less than 1,200 feet to insure that the aircrafts' noise characteristics will prove to be tolerable to the people living in those communities and not create or maintain any unlawful nuisance or otherwise unreasonably annoy or disturb others; and

"Whereas the conditions contained in the October 2, 1958, resolutions reflect the acoustical consultant's findings that the perceived noise levels from the Boeing 707–120 or Comet IV aircraft, powered and equipped as aforesaid, flying over communities surrounding New York International Airport at altitudes of no less than 1,200 feet will measure no more than 112 perceived noise decibels and would be comparable in this respect to the present noise generated by conventional propeller-driven airliners flying over such communities and should prove tolerable as aforesaid to the residents thereof; and therefore, said conditions expressed a method of obtaining the tolerable level of perceived noise, in terms of altitude and thrust: Now, therefore, after due deliberation had, it is

"*Resolved*, That it appears advisable that the conditions for permission to operate Comet IV and Boeing 707–120 aircraft powered and equipped as aforesaid at New York International Airport be restated directly in terms of perceived noise decibels rather than indirectly in terms of the 1,200-foot altitude and reduced thrust, to make it clear that takeoffs of such aircraft so powered and equipped will be permitted from any runway at New York International Airport only if they are so planned and conducted that the noise level of 112 PNdb as measured on the ground in the communities defined on chart No. NYA–5967, a copy of which is in the official files of the Secretary, will not be exceeded; and be it further

"*Resolved*, That the Executive Director be and he hereby is authorized to permit the operation of the Comet IV aircraft and the Boeing 707–120 aircraft powered and equipped as aforesaid in scheduled service at New York International Airport, subject to the following terms and conditions:

"1. (a) Runway 25 shall be a mandatory preferential runway for takeoffs in zero wind conditions and for all wind conditions which will produce headwind component when the crosswind component does not exceed 13 knots; provided, however, that runway 22 may be used at all times for takeoffs in lieu of runway 25.

"(b) In the event that takeoffs cannot be made on runways 25 or 22 under conditions set forth in (a) above, then, and only in that event, runways 13R, 31, and 7 may be used.

"(c) Takeoffs during the hours between 10 p.m. and 7 a.m. will be made on runways 25 or 22 only.

"(d) No takeoffs will be made on any other runways without the specific permission of the airport manager.

"2. Takeoffs on any runway will be permitted only if they are so planned and conducted at the airport that the noise level of 112 PNdb as measured on the ground in the communities defined on chart No. NYA–5967 will not be exceeded. When aircraft weight, wind, temperature, and other operational data as set forth in the approved airplane flight manuals, route manuals, and the pilots' operating manuals are such that a takeoff planned in accordance therewith will produce a higher noise level than 112 PNdb measured at such communities underlying the flight path, such takeoff will not be permitted; and be it further

"*Resolved*, That all operations conducted pursuant to the above conditions shall also be subject to the Air Traffic Control Procedures prescribed by the Federal Aviation Agency and to limitations as to gross weights for runway lengths, temperature and wind conditions, and as to other factors imposed by governmental authority.

"Approved:

———— ————

"*Acting Chairman.*"

OPERATIONS, SEPTEMBER 3, 1959

4. New York International Airport—Permission for the operation of Boeing 707–320 and Douglas DC–8 aircraft

It was reported that the acoustical consultant firm of Bolt, Beranek, & Newman have conducted sound-evaluation tests of the Boeing 707–320-type aircraft powered by Pratt & Whitney JT4A–3 engines equipped with nine tube suppressors and on the Douglas DC–8-type aircraft powered by both JT3C–6 and JT4A–3 engines equipped with daisy ejector suppressors, and have advised us that these aircraft may be operated at sound levels which will be tolerable to the communities surrounding New York International Airport so long as they comply with the terms and conditions which are now in effect for the operation of Boeing 707–120 and Comet IV jet aircraft at New York International Airport as established by the operations committee at its meeting of April 29, 1959.

It was recommended that the Executive Director be authorized to permit the operation of these aircraft in scheduled service at New York International Airport subject to the aforesaid conditions.

The committee has power to act in this matter under article XI, paragraph D–8, of the bylaws.

Whereupon, the following resolution was unanimously adopted:

"Whereas the accoustical consultant firm of Bolt, Beranek, and Newman have conducted sound evaluation tests on the Boeing 707–320-type aircraft powered by Pratt and Whitney JT4A–3 engines equipped with nine tube suppressors and on the Douglas DC–8 type aircraft powered by both JT3C–6 and JT4A–3 engines equipped with daisy ejector suppressors and have advised that the noise characteristics of these aircraft are such that they can be operated in scheduled service at New York International Airport so as to be tolerable to the people in the communities surrounding the airport if they comply with the same conditions as were prescribed by resolution of this committee of April 29, 1959, for Boeing 707–120 and Comet IV aircraft powered and equipped as therein set forth: Now, therefore, after due deliberation, had it is

"*Resolved*, That the Executive Director be and he hereby is authorized to permit the operation of the Boeing 707–320-type aircraft powered by Pratt and Whitney JT4A–3 engines equipped with nine tube suppressors and the Douglas DC–8-type aircraft powered by both JT3C–6 and JT4A–3 engines equipped with daisy ejector suppressors, in scheduled service at New York International Airport, subject to the following terms and conditions:

"1. (a) Runway 25 shall be a mandatory preferential runway for takeoffs in zero wind conditions and for all wind conditions which will produce a headwind component when the crosswind component does not exceed 13 knots; provided, however, that runway 22 may be used at all times for takeoffs in lieu of runway 25.

"(b) In the event that takeoffs cannot be made on runways 25 or 22 under the conditions set forth in (a) above, then, and only in that event, runways 13R, 31L, and 7 may be used.

"(c) Takeoffs during the hours between 10 p.m. and 7 a.m. will be made on runways 25 or 22 only.

"(d) No takeoffs will be made on any other runways without the specific permission of the airport manager.

"2. Takeoffs on any runway will be permitted only if they are so planned and conducted at the airport that the noise level of 112 PNdb as measured on the ground in the communities defined on chart No. NYA–5967 will not be exceeded. When aircraft weight, wind, temperature, and other operational data as set forth in the approved airplane flight manuals, route manuals, and the pilots' operating manuals are such that a takeoff planned in accordance therewith will produce a higher noise level than 112 PNdb measured at such communities underlying the flight path, such takeoff will not be permitted; and it is further

"*Resolved*, That all operations conducted pursuant to the above conditions shall also be subject to the Air Traffic Control Procedures prescribed by the Federal Aviation Agency and to limitations as to gross weights for runway lengths, temperature, and wind conditions and as to other factors imposed by governmental authority."

The CHAIRMAN. Mr. Wiley, I thank you very much for your testimony.

We are going to hear a number of you people, because of our interest in the problems you have. And we are also going to hear both Admiral Rosendahl and the administrator of the regional FAA office here.

At the same time, it is our hope that we can actually experience some of these problems by going into your community where the actual complaints are. There are going to be jets available. Some of us have already come in and flown over your areas, and if we disturbed anybody during that this morning we apologize. But we were only in a DC–3. But I would say that I think it will be developed, as a matter of fact, that the jets are relatively a minor problem so far. This problem has been going on for years. If you didn't have a jet here you would still have the problem.

Thank you very much, Mr. Wiley.

Now, I want to hear from this gentleman from Queens. If you will come around, please, sir.

If you people will cooperate with us, we can expedite this and get the information. And we would appreciate it very much.

Will you please state your name?

STATEMENT OF ROYAL E. DALRYMPLE, PRESIDENT, QUEENS COMMITTEE FOR AVIATION REFORMS, INC., AND PRESIDENT OF THE ST. ALBANS CIVIC IMPROVEMENT ASSOCIATION, INC.

Mr. DALRYMPLE. My name is Royal E. Dalrymple, president of the Queens Committee for Aviation Reforms, Inc., and also president of the St. Albans Civic Improvement Association, Inc., founded 53 years ago and continually active for the welfare of the community. I am, sir, in my 27th term as president, as you know, without compensation. My address is 11904 193d Street, St. Albans, Queens County, N.Y.

As you know, Queens County is known as a homeowners county.

Mr. Chairman, I thank you on behalf of our two groups which I represent for this opportunity. My first request would be will the record kindly show that Mr. Sidney Goldstein, general counsel of the port authority, was seated next to Mr. Wiley during his testimony?

The CHAIRMAN. The record shows that; yes.

Mr. DALRYMPLE. Thank you, sir.

Mr. Chairman and members of the committee, during a period of years the people adjacent to La Guardia and Idlewild Airports have been the victims of a vicious aircraft, in my opinion, racket. We on the ground, who have suffered night and day, sleepless nights, with sickness—and I may add 7 weeks ago I was taken to my bed with the shingles, followed by chicken pox, at my age. And I am still under the care of the doctor. Many sleepless nights I had, considering these low-flying planes. I am one of the victims of sleepless nights.

Furthermore, Mr. Chairman, as president of these two groups, I would like to put into the record that I personally am a member of the Queens Borough President's Committee. I know personally John Wiley, Mr. Goldstein, Admiral Rosendahl, and many other who have participated in conferences, conferences, steady, steady, but we need

action, action to prohibit or regulate certain local conditions, namely—recently a local pastor said to me in St. Albans, "time and time again I have been interrupted in my sermons by these low-flying planes. How can you preach the gospel if the people cannot receive it?"

Furthermore, we have been informed that these visitors from foreign countries, who have participated in the tennis tournaments at Forest Hills, have been annoyed by the low-flying planes. Furthermore—I am giving you this personal testimony—furthermore, schools in the vicinity of these airports, the teachers have been annoyed. And you talk about juvenile delinquency.

It affects the privacy of a home, the patients in hospitals. And, Mr. Chairman, our Congressmen, both from Queens County and Nassau County, who have attended our meetings, not one, many, many meetings, and have promised that they will do everything to either regulate or legislate something to curb or prohibit this menace—we know about cancer. Cancer is a serious health menace. And let me say to you good gentlemen who came to Washington to serve us, that the noise from these aircraft must be curbed and finally prohibited for wholesome and humane progress.

May I also say, without any criticism of the committee, the high pressure of lobbyists is elsewhere and other places for the air industry must be investigated and exposed.

And, in conclusion, Mr. Chairman, and gentlemen, recently the President of the United States went abroad to create among the foreign nations a feeling of safety, security, peace, and freedom. Members of the committee, will you give us in Queens County and Nassau County, we beg of you, peace, freedom, privacy, for the future humane health of the communities.

Thank you very, very much.

The CHAIRMAN. Any questions by anyone?

Mr. FRIEDEL. Mr. Chairman, just for the record—when did you first move to your present address?

Mr. DALRYMPLE. In 1929, August.

Mr. FRIEDEL. Has there been any zoning laws passed in your counties, to keep homes away from the airfield or anything of that sort?

Mr. DALRYMPLE. Yes; there has been certain zoning. But, remember—I thank you for that question. Please keep in mind of the thousands and thousands of homes in the vicinity of both airports, La Guardia and Idlewild, that were erected prior to the initiation of the air industry.

Mr. FRIEDEL. That is what I wanted to bring out.

Mr. DALRYMPLE. I know. That is why I want it on the record.

Thank you, sir.

Mr. WILLIAMS. Mr. Chairman, may I ask one question of this gentleman?

The CHAIRMAN. Mr. Williams.

Mr. WILLIAMS. Of course, as you know, one of the purposes of the committee's being here is to seek to effect some remedy. The question of jurisdiction is involved. I realize that you wouldn't want to discuss that. But this is a physical problem. Apparently, it is going

to take a great deal of research to lessen the noise levels of these aircraft. In the event that cannot be found, a solution to the problem of the noise on the individual aircraft per se, as such, then the only other alternative, if it cannot be corrected by rerouting the traffic in some manner, would be, of course, to take traffic away from the airfield.

Do you feel that the people of this community and this general area would be willing to give up what benefits they might get from the operation of this airport in return for the elimination of this obvious nuisance?

Mr. DALRYMPLE. Have you finished?

Mr. WILLIAMS. Yes. I am asking the question. Just how much do the people of this area value whatever benefits they may get from the location of the field, economically and otherwise?

Mr. DALRYMPLE. I understand. That is another timely question. The people of the counties of Queens and Nassau are professional, well educated, consisting of engineers, doctors, lawyers, plus, plus, plus. And they and I know if an order was issued by the port authority or the FAA, or your committee, or the President of the United States, that every airplane would be grounded if it did not attach noise suppressors, whether it eliminated two seats or three seats, whether it cost 10 million or 20 million—health comes first, privacy comes second. And we believe this whole matter can be adjusted if the air industry would play ball, as well as having genuine honest-to-goodness ethics applied. They are not applying ethics.

Mr. WILLIAMS. I am afraid that answers my question only partially.

Mr. DALRYMPLE. Will you ask the direct question, then?

Mr. WILLIAMS. I am informed there are some 22,000 people that work at this field. Now, the point of my question is this as was mentioned by Mr. Friedel a moment ago. Would the people here, the general community, object if it was impossible—if it should appear impossible to abate the noise—would they object to the transfer of this international and jet traffic to some other field, such as Baltimore?

Mr. DALRYMPLE. In answer to your question, sir——

Mr. WILLIAMS. I asked you for your opinion.

Mr. DALRYMPLE. Yes; I understand. According to the information in my possession, the Borough of Queens consists of about 1,800,000 residents. Nassau County has about an equal number. Therefore, if there are 22,000 employees that work at these airports, I believe a substantial number of the population of both counties would say by all means, ground them, or get rid of them.

The CHAIRMAN. Mr. Williams, any further questions?

Mr. WILLIAMS. No further questions, Mr. Chairman.

The CHAIRMAN. Any further questions?

Thank you very much, sir.

Mr. DALRYMPLE. Thank you, Mr. Harris. It has been a great honor and privilege to have this opportunity.

Thank you, sir.

The CHAIRMAN. We are going to try to hear a number of you. I am going to hear this gentleman next.

TESTIMONY OF JOSEPH CARLINO, REPRESENTING LOCUSTWOOD CIVIC ASSOCIATION

Mr. CARLINO. Joseph Carlino.

I live at 58 Sussex Road, and I represent the Locustwood Civic Association, adjacent to the Belmont Park Racetrack.

Mr. Chairman, so many statements have been made here; some are true, some are false. But in order to convince you really what is going on in our community—I don't think I need that, I am loud enough—in order to convince you really what goes on in our community, without the knowledge of the port authority, any time you feel like being my guest, for a night and a day. I don't say for days and days. Every 2 or 3 minutes. It isn't only the noise. It is the house that vibrates. If you have ever been in a place where there has been an earthquake, you would know what I am trying to tell you. Our house vibrates so that sometime we jump out of bed scared.

Neither General Quesada or the port authority or anyone can assure us, and I don't think they even insured of this—our Congressman Derounian—that those planes are safe up in the air. They are no god. Time and time again planes crash, and they don't know the answer yet, or the causes of those crashes. And when a man goes to sleep at night with this thought in mind, believe me you don't rest very restful.

Then I would like to say this, too, Mr. Chairman, that within a few years, the airplanes, because of the aim of the airlines, will be as crowded in the air as our roads are today. Then what will happen? How can we stand that noise then? Today we get one every 2 minutes. Maybe in 2 or 3 years, we may get three or four at the same time. What are we to do? Are we going to live on the ground because of the jet age or the atom age, and be prohibited to enjoy what God and nature has created? These are the conditions in our communities, Mr. Chairman.

That is all I have to say. I want to give other people a chance.

The CHAIRMAN. Thank you.

Let me say to you people—we know there is a problem. We wouldn't be here otherwise. And it is not necessary to take up our time telling us these things. We know it is happening. What we want to know is how we might do something about it.

A SPECTATOR. May I ask a question along that vein?

The CHAIRMAN. I am going to hear you. You have been rather persistent here.

A SPECTATOR. Mr. Chairman, I have a possible solution for that.

The CHAIRMAN. I will get to you in just a minute.

STATEMENT OF BENJAMIN POTAR, CEDARHURST, N.Y.

Mr. POTAR. My name is Benjamin Potar, and I live in Cedarhurst. I have been living there since 1929. I was in the air service in World War I. I was an original inspector of airplanes. I use airplanes to fly. I think they are here to say. But I was instrumental in getting the people of Cedarhurst to pass this ordinance prohibiting planes from flying 1,000 feet. This ordinance was carried to, I think—

the law was carried, I think, to one of the Federal courts, and was defeated. And the judge ruled against, in favor of the airlines.

Now, here is what Congress could do.

The CHAIRMAN. Well, let me complete the record. That was a case that involved the jurisdiction of the Civil Aeronautics Administration which went to the U.S. circuit court of appeals. The circuit court of appeals in that decision interpreted emphatically what the law is, and certiorari was denied by the Supreme Court of the United States.

Mr. POTAR. Now, that was just the Court of Appeals of the State of New York—of the Federal. The one it went to. We were not able to appeal that all the way to the Supreme Court, because of the lack of funds.

Now, the question arose at that time of the property and human rights versus money—let's put it frankly that way.

Now, you and I know that the Supreme Court has made decisions in many cases where the human rights were considered paramount as against all economic cost to any industry or what it might cost. And it was only due to the fact that we didn't have this money that the act of Congress in establishing this here level of flying was accetped as the judge ruled.

Now, here is what Congress can do. Congress can go back and give back to the people the rights they have—and I as a layman can only quote them—of owning land so far down, so many feet down and so many feet high.

Now, what would prevent the residents of Cedarhurst and Lawrence and Queens of getting together and erecting for civil defense purposes a series of towers, 1,000 or 2,000 feet high, in line with these here runways. You couldn't go into New York. They have chased the planes out of New York City. They are not allowed to fly there. And aviation is still going on. Ever since the accident at the Empire State Building, planes are ruled "cannot fly there." You can't see no passenger planes flying through New York City. So, why can't we do the same thing here? And Congress can help us do this, by enforcing—by giving back first to the people the rights of the property rights over their land.

Now, as to the jurisdiction, Mr. Chairman, I sat in at a meeting at the borough's president's office, and Emanuel Celler was there, and he took the port authority to task and said that they have no authority. He maintains that. He threw the book at them and says, "You can't stop progress. You have no authority." And I think that authority could be settled.

Now, what you can do, and anyone here that is a lawyer in this group can do, can come through and carry this case to the Supreme Court, first as to the local ordinances. And we do have local ordinances. I can't play my radio after a certain hour and blast. Somebody will come there and I will get a ticket. There are human rights to be considered. And you cannot drive a big trailer truck through the center of New York certain hours. And if they pass that law and say they can't drive those trucks, we are not against progress. We are trying to consider the majority of people as against the benefit of a few. And Congress, I think, should take very much in consideration the repealing of that law which says that the land rights do not go up either 1,000 or 2,000 feet, whichever they stated it was.

And I think if you went back and did that you would enable the local villages through here to establish local ordinances which would make the airplanes and the airlines find methods of getting in and out of the airports. We have got to have them. We can get along without them, but I don't think the people of Queens and Suffolk and Nassau are that selfish. They know they are here. They are not asking you to chase them out of here. They are asking you to control them. And I think, with your cooperation, the cooperation of Congress, these lines will be staying in here, and the people living here will live in peace.

Thank you.

The CHAIRMAN. Thank you very much.

Mr. S. W. Steffensen.

Will you identify yourself, please, and the gentleman with you.

STATEMENT OF S. W. STEFFENSEN, CONSULTING ENGINEER TO THE BOROUGH PRESIDENT, AND CHAIRMAN OF COMMITTEE ON AVIATION PROBLEMS; ACCOMPANIED BY J. WOLFE CHASSEN, COMMISSIONER, BOROUGH WORKS, AND ERNEST NEUFELD, EXECUTIVE DIRECTOR, BOROUGH OF QUEENS

Mr. CHASSEN. My name is J. Wolfe Chassen. I am the borough works commissioner, Borough of Queens.

Mr. STEFFENSEN. I am consulting engineer to the borough president, and also chairman of his committee on aviation problems. My name is S. W. Steffensen.

Mr. NEUFELD. I am Ernest Neufeld. I am executive director of the borough and vice chairman of that same committee.

The CHAIRMAN. You may proceed, Mr. Steffensen.

Mr. STEFFENSEN. Mr. Chairman, and honorable Members of Congress, friends here today, today there is a parade in New York City, Labor Day, first one in 17 years, and the official duties of the borough president require that he be present to review the parade. We have been in contact with him and as soon as it is at all possible, he will join us here today, to make his presence felt and his views on the subject known.

The borough president's committee on aviation problems has been existing—that is, the present committee and its predecessors, since about 1951.

The original committee was largely responsible for the presentation of the solution to many of the problems associated with aviation by way of the preferential runway system.

This was widely publicized and made known throughout the United States, in Mr. Doolittle's report to the President of the United States entitled "The Airport and Its Neighbors," which was published, I believe in 1954.

One of the essentials here was the preferential runway system, of which we have heard much this morning.

The present committee, which the borough president has appointed, has representation from the Airline Pilots Association, from the Air Transport Association of America, the Chamber of Commerce of the Borough of Queens, the Civil Aeronautics Board, the Federal Aviation Agency, the Department of Marine and Aviation of the City of

New York, the National Air Transport Coordinating Committee, and the Port of New York Authority, and many, many civic groups and federations of civic groups within the Borough of Queens.

I cannot presume to speak as representing the views of such a diverse group as this. I must speak as impartial chairman of this nonpartisan and nonpolitical committee. I speak, then as its chairman, and as a representative of the bureau president.

During the past year, the committee has met every month in 2-hour sessions, many of the meetings extending beyond the 2 hours allotted. We have had the cooperation, not only of the civic groups, but of the various agencies and operational groups represented.

One thing that has come out of the meeting, which I can assure you gentlemen is the fact that the problem and its intolerability has been firmly established. We can hear many of the people in back of me today who can affirm this. But I can assure you from the deliberations of our committee that there is no question whatsoever but that conditions are at many times intolerable. This is agreed to by Mr. Wiley who addressed you before today; he so stated in his paper. It is agreed to by the Airline Pilots Association representative, by the FAA representative on our committee, by the National Air Transport Coordinating Committee, by the American Transport Association representative.

So we are not faced so much with a problem of investigation of the nature of the problem, because it surely and sorely exists. What has happened may be tantamount to confiscation of property in part without due process of law, if people are annoyed beyond what may be considered tolerable. We are not a complaint agency. The files of the NATCC and the FAA and the port authority will be much more replete with complaints than what I can produce here. We have merely the gleanings.

In my hand is a file of complaints that have come into the office of the borough president mainly within the past few months. As you can see, it is a substantial file. We feel the time has come that now that we know the problem does exist, we have great confidence, and the borough president has great confidence in the ingenuity of man, if he is forced to find a way out, that he will be able to find a way out and solve this problem. It is going to take money. Many people will object to spending money until they are forced to do it. We believe that behind this should be the force of law. That legislation should be passed to firmly place the responsibility for regulation enforcement of noise nuisance restraint in some agency, possibly the FAA.

During the deliberations of the committee during the past year, there has been no disagreement in that committee, but that there is no such jurisdiction at the present time. Recently, there has been a diverse opinion expressed to the effect that the FAA may have such responsibility. That certainly was not the opinion of the regional office of the FAA with whom this question has been previously discussed.

So I would appeal, gentlemen, on behalf of the borough president, for legislation that will once and for all firmly fix the responsibility for the regulation of noise.

Thank you.

The CHAIRMAN. Mr. Steffensen, from the long study you and your committee have given this problem constantly—and I think we must all agree that not only is it a problem in New York, but it is a problem in the major airports throughout the country. It is a problem with broad applicability, and it is going to have to be approached as such, I think we will all agree that aviation is here to stay. It is going to serve the interests of the people. This is one of the major modes of transportation now, not only commercially speaking, but insofar as our national defense is concerned. And so from that standpoint, we have got to approach the problem in a practical way.

Now, has your committee, during all the hearings it has held, and the meetings you have held, come up with any suggestions as a solution?

Mr. STEFFENSEN. The committee that I represent, because of its diverse nature, has been unable to come out with a report which would represent the recommendations of the entire committee. You can understand that on this committee—it is more a forum—on this committee you have people who might be adversely affected by any recommendations made by the committee.

We have been restricted to discussion and exchange of views among the civic groups, the operational agencies, and the regulatory agencies.

It has been largely one of attempting to seek cooperation where the force of law was not present.

I might say, Mr. Chairman, if I may, that you are perhaps familiar with various actions that the borough president has taken as a result of his convictions in connection with this problem. He recently went to Washington, where he held a meeting through the courtesy of Mr. Bosch's office, where he met with the Congressmen from Queens and Nassau, in order to try to foster legislation that would direct this jurisdiction to a specific agency.

The CHAIRMAN. All of us, or most of us, on this committee now were a Member of the Congress and committee in the last Congress, and some of us have been for a good long while. This is a problem that has not gone unnoticed.

Now, in the Federal Aviation Act last year, certain additional authority given to the Administrator of the Federal Aviation Agency, and I think it would be helpful to you and to the people here to read this in the record again. It has to do with air traffic rules, which is the very problem we are dealing with here now—though noise is the end result.

It is in paragraph (c) of section 307 of that act.

The Administrator is further authorized and directed to prescribe air traffic rules and regulations governing the flight of aircraft for the navigation, protection, and identification of aircraft, for the protection of persons and property on the ground, and for the efficient utilization of the navigable air space, including rules as to safe altitudes for the prevention of collision between aircraft, between aircraft and land or water vehicles, and between aircraft and airborne objects.

Mr. STEFFENSEN. Mr. Chairman, on page 10 or 11 of that document you hold in your hand, you will find a statement of the policy of the FAA as established by this act of 1958. You will find several references in there to safety as coming within the jurisdiction of the FAA. There is no reference to noise nuisance or public welfare in terms of health contained in that.

On page 44 or 45, you will find a safety regulation expounded.

The CHAIRMAN. Now, this is not the policy of the Federal Aviation Agency. This is the policy which the Congress provided. It is in the act itself. And this is the law which the Congress provided which I have just read to you. And it does say, "for the protection of persons and property on the ground."

Mr. STEFFENSEN. As for safety or other respects?

The CHAIRMAN. For any purpose.

Mr. STEFFENSEN. I am not a lawyer, Mr. Chairman, and I would not attempt to rule on what the law means.

The Bureau President, in a very recent letter to General Quesada, has asked him for his interpretation of that section of the law. To my knowledge, he has not as yet received a reply.

Mr. BOSCH. Mr. Chairman, for the record, I would like to read a letter I got from General Quesada, dated August 24, in response to a conference in my office with regard to this problem. I will read just the part that refers to this discussion now, Mr. Chairman.

Where an air traffic control problem arises from the takeoff and landing of aircraft, it would appear settled by judicial decision that it is to be regulated by the Federal Government, rather than by State or local governments. As you recall, under the decision of the Court of Appeals for the Second Circuit, in the case of *Allegheny Airlines, Inc., et al., v. Village of Cedarhurst, et al.* (230 F. 2d 312), the court held invalid the regulations of the village of Cedarhurst which concerned the takeoff of aircraft from New York International Airport and which were determined to be in conflict with those of the Federal Government. The decision holds that the Federal Government by the enactment of legislation and issuance of implementing CAA regulations had preempted the field of air traffic control.

While the above court decision looks to the Federal Government and to this Agency acting in its behalf for appropriate regulations, this does not mean that we would act without regard to the interests of the local jurisdictions. The interests of all parties concerned must be carefully weighed in determining the appropriate regulations to be issued in the public interest. An arbitrary exercise of authority would create only new and perhaps equally difficult problems. The problem is a complex one, which I am hopeful, with the understanding and cooperation of all parties concerned, will result in the issuance of a lawful regulation that will be fair and equitable to the varying interests.

Now, this is the part:

Thus, while I feel I have the basic legal authority to issue air traffic control regulations to suppress jet aircraft noise for the protection of people and property on the ground, I am, of course, not in a sound position to issue any such regulations until appropriate technical and legal studies are completed.

That is the interpretation of 307(c), in which the Federal Aviation Administrator says while he may have the authority, he is not going to use the authority.

The CHAIRMAN. Well, I do not interpret that letter that way at all. I think he is to be commended for recognizing the problem and recognizing the views and wishes of the local people.

Now, I happen to know something about this jurisdiction problem myself and this committee does. And this particular item came up during the consideration of legislation over a problem of crop dusting. Now, I know precisely how it developed. And consequently, it was included in the act. The great problem, and that is what we want to do with you people here today, is to see what we can do toward a solution to the problem.

Mr. STEFFENSEN. Do I understand, Mr. Chairman, then, that in answer to the question, "Does the FAA have jurisdiction over noise regulation and enforcement," that the answer is "Yes"?

The CHAIRMAN. I think beyond a doubt.

Mr. STEFFENSEN. I say that that is a big step forward, Mr. Chairman, if that is the opinion, because that obviates the necessity for legislation which is often time consuming. We then may presume that the FAA will recognize that responsibility and will proceed accordingly.

The CHAIRMAN. I am sure that you will find out, when all the facts are in, that FAA is working hard and diligently on it, and also the industry—I do not know the extent of it.

Mr. STEFFENSEN. May I suggest, as an additional thought regarding what might be done in the meantime, I have attempted within the last few days to chase down a report that the Paris and London airports are closed to jets in or out between 11 p.m. and 7 a.m. I have not as yet been able to ascertain whether that is a fact. Someone here present may know the answer.

However, I believe that the people of our communities can put up with a tremendous amount of nuisance and noise and disturbance during the daytime, if they are permitted to have a night's sleep. And it would be a long step forward if the Port Authority might give consideration to this question of whether the jets could be barred from the airport, either in or out, between 11 p.m. and 7 a.m. It would be a big help.

The CHAIRMAN. I should like to call State Senator Daniel Albert of Nassau County.

STATEMENT OF STATE SENATOR DANIEL ALBERT, NASSAU COUNTY, N.Y.

Mr. ALBERT. Mr. Chairman, members of the committee, I am very happy to be here to talk for the citizens of Nassau County. We are very happy to have a committee like this representing the Congress of the United States in this community to see the problems at first hand, and possibly help to alleviate some of them.

I do not think you will hear from any man or woman in this area the thought that Idlewild is to be eliminated. I think everybody is of the opinion that Idlewild is here, and it is here to stay. And certainly with the investment of well over $300 million that has been going into this area, into this International Airport during the past several years, I do not think anybody wants to tear that down and eliminate it.

My Second Senatorial District in Nassau County includes practically all of the vital areas that are most vitally concerned with the airplane problem—that is, the Five Towns area, consisting of Cedarhurst, Lawrence, Inglewood, Valley Stream, Floral Park, Melrose, all of those communities immediately surrounding the Idlewild International Airport area.

I have been vitally interested in this problem for the past couple of years, particularly since the growth of Idlewild has brought about a greater number of flights in and out of this airport. And as we go along, I think we have a right to expect that the flights will increase rather that decrease.

We started this about 2 years ago, a committee was formed, for your information, consisting of representatives of the various areas in Nassau County, who are most vitally interested. They called that the Nassau Communities Coordinating Aviation Committee. This committee was formed for the purpose of meeting periodically with officials of all of the agencies that are involved with traffic in and out of Idlewild, consisting of the FAA, the Port of New York Authority, the Airlines Coordinating Committee, the National Airlines Association. And we have met with all of these gentlemen that you have heard today, and will hear before your hearing is over. And every time we meet with them, we have a feeling that perhaps there is going to be some alleviation of the problem. But sometimes there is for a few weeks, and after that it becomes more aggravated.

I want to give you gentlemen an angle that has not been mentioned here today. It came out of an incident that happened at one of the meetings that we had approximately a year and a half ago in Garden City, where Admiral Rosendahl and Mr. Roves and John Wiley, and Joe Blatt, your FAA regional administrator—all of these gentlemen were present. And included in this meeting was also a gentleman, I think his name was Captain Smith. And he was the chairman or the president of the Airline Pilots Association. He has never come to another meeting, even though we have had half a dozen of them. And I will tell you an incident which might be one of the keys, not the entire solution, but one of the possible solutions to this whole situation.

We had a meeting that lasted approximately 3 hours, and all the pros and cons of this whole situation were discussed. And finally we were about to adjourn and only about 5 minutes before adjournment, Captain Smith spoke up. He says, "You know, gentlemen, regardless of anything that has been discussed here, you know how we pilots feel about this situation; don't you? We like to bring those planes into those airports like coming through a tunnel."

Now, there you might have the answer to what might happen here if a little bit of education on the part of the airlines took place between the executives of the airlines and their own employees, the pilots.

Now, these planes come in here—the whole problem is not the jet. The jet has merely aggravated the situation during the past several months, since they have been permitted to come in and out of Idlewild Airport. But long before that, and even now, far more, far in excess of the jet problem, in my opinion, is the propeller propulsion plane, the regular routine plane that comes and goes. And they far outnumber all of the flights of the jets during the day and the night. And I think if you asked these citizens here today they will tell you that the jet problem is merely an aggravating problem but is not the whole thing at all. It is nowhere near the whole thing. And the main problem is your conventional aircraft, because they are so numerous. As Idlewild grows, you are going to have more and more of them.

As far as the communities of Nassau are concerned, the big problem is the conventional craft.

We feel first that there ought to be teamwork, which we do not feel there is now, between the FAA and the Port of New York Authority,

between the airlines, and between the pilots who guide these planes.

Now, these pilots—I live in Rockville Centre. That is approximately 10 miles as the crow files from Idlewild. It is further than that from La Guardia. When planes come over Rockville Centre, believe me, gentlemen, they sometimes sound like they are coming down the chimney. You sit out in your back yard and you can see the people in the planes. Now, that is no thousand and no 1,200 feet up. That is hundreds and hundreds of feet under the ceiling which is now regulated by Federal statute. The Federal statute I think has 1,000- or 1,200-foot minimum ceiling when planes are away from the airfield, and after they have become airborne. Now, those planes over the entire area surrounding all of the violation of the Idlewild area go nowhere near 1,000 or 1,200 feet above the ground, when they are well able to do it, and that is on takeoffs and landings. There isn't any question about it. And I think one of the only ways in which you can possibly control a situation like this is by patrol. You have police patrolling your highways in a great many other areas of transportation throughout this Nation. I do not know of any patrol, I don't know of any check, I dont' know of any way in which there can be any control of planes taking off or coming down that are violating the Federal statutes that are in existence at the present time unless you have some method of checking. Certainly, when a plane is seen coming over a community at 150 or 200 feet when he should be up a thousand feet, there is no way in which the citizens of that community can lodge a complaint against the plane that is violating all of the rules in the book. If you had an air patrol, if you had some sort of a police system—I do not know whether it would be under the Port of New York Authority or under a Federal agency. If you have no Federal agency control to enforce the regulations which are already on the books, which General Quesada speaks of when he answered Congressman Bosch—you have the regulations, but how in God's name are you going to be able to control them if you do not have anybody to police them?

Now, I think—it has come up time and time again, citizens want to know what they can do about it. All they can do is make a phone call. They don't know who to call, how to identify the planes that have been in violation. And unless the Government sets up some sort of an agency, or some sort of a wherewithal or a means by which this business of traffic can be controlled, I don't see how you are going to control it.

By the same token, it has taken us a great many months to find out now from the spokesman of the Port of New York Authority that two of the most important airlines in the country and in the world, for that matter, have been constantly violating jet takeoff regulations. Now, with a patrol on the ground, with men who are vested with the 24-hour-a-day duty of being able to check whether the regulations of the Port of New York Authority are being violated, or whether they are being complied with, and by a Federal Aviation group that can check whether or not the Federal regulations and statutes are being complied with, I do not know how you are ever going to check this problem, and it is going to be more aggravated before it is getting any better.

I am firmly of the opinion that most of these planes are violating your present existing low-level statutory regulations and low-level flying. They like to hedgehop.

These fellows have control of their planes, and the people underneath be damned, so far as they are concerned. I think that is the attitude. I think the expression made by this president or chairman of the Pilots Association at our meeting a couple of years ago well expressed the idea and opinion of the pilots, that they like to bring these planes in through a tunnel. And that is what they are doing. They are doing it in a great many instances, and unless there is something done by the people who control these employees, who know that they are going to be answerable to them for violating the rules, I do not think they are going to get anywhere.

The CHAIRMAN. Senator, are you saying these planes fly promiscuously over residential areas?

A SPECTATOR. Yes.

The CHAIRMAN. Now, I am asking a question, and it is helpful to this record. I ask the cooperation of those who are here. And if I cannot get it, I know one way I can.

Mr. ALBERT. Yes; there isn't any question about it. There is no doubt about it in my mind or the minds of other officials who have watched this situation very closely during the past couple of years. These planes, even when they are away from the airport, going over heavily populated communities, fly much lower than they should be flying under regular statutory regulations as they presently exist. And that is something that has to be controlled. And until you control that, you are not going to have any answer to your problems.

That is the whole thing in a nutshell, yes.

The CHAIRMAN. I think it would be helpful to look into that some more.

Mr. ALBERT. I think the low flying question is a bigger question even than the jet situation. And insofar as the jets are concerned, I agree wholeheartedly—I know the Port of New York Authority has something to do with our legislature. If the Port of New York Authority does not do something about enforcing these regulations which they have adopted, we intend to do something about it. I agree with Congressman Derounian and Bosch wholeheartedly, if these airlines do not comply and conform with the regulations of the Port of New York Authority and those jet flights taking off over the water as they are required, and not taking off during the night hours, as they are required over populated areas, something drastic should be done insofar as enforcing a leaseholder's right over his tenant, and all the airlines are tenants of this Port of New York Authority, and they ought to do something about it.

The CHAIRMAN. May I ask if in your service in the New York State Legislature, there has been any effort made, through State legislation, to deal with this subject matter?

Mr. ALBERT. Yes, Mr. Chairman. Two years ago, when we started this agitation to have the airlines do something about it, I introduced a measure in the Senate, sponsored by one of our Nassau assemblymen, which would require a minimum ceiling for low-flying planes in and about any airports located in the State of New York.

We held that in committee, because there were several meetings and hearings held in which all of the representatives of the aviation authorities, including the Government officials, Port of New York Authority, the airlines officials, the National Air Transport Coordinating Committee—they all appeared and assurance was given at that time that would we please hold this matter in abeyance and give them an opportunity to correct the situation themselves. We had every assurance that they would take corrective measures. But over a period of time—incidentally, as I said before, a few months immediately following the introduction of this legislation, I was informed that there was a slight alleviation of the situation, there was some hope it would be better, because of the result of teamwork between all of the people involved. The situation instead has become very much aggravated, and frankly, we are now studying a means of introducing legislation which we think will have some corrective measures. Unless you gentlemen are able to do something before we go into session in January we expect to try to do something about it under our police powers concerning the health, welfare, and safety of the people of the State.

Frankly, I think, however, that the Federal Aviation Agency does have means within its power and statutory rights at the present time to do something, if it concentrates on this particular problem on Long Island and tries to enforce the regulations which the statute already gives them the right to.

The CHAIRMAN. I recognize it is a very tedious situation to deal with, because of possible conflicts between State and Federal jurisdiction.

Mr. ALBERT. That is very true.

The CHAIRMAN. I think the State at this time would largely have to give way to Federal legislation except in certain areas.

Mr. ALBERT. That is very true, Mr. Chairman. One of the reasons we have not pursued it more diligently than we have is because we thought that perhaps the organization of the new Federal Aviation Agency, which has only been a recent one, would probably come up with an answer to this problem. It is a thorny problem. It cannot be solved overnight. But I feel, as I said before, that if there is teamwork between the lay authorities, and if there are more drastic and stringent measures taken by the authorities that already have the statutory right to do so, I was hopeful that this problem would be solved without the necessity for State legislation. But if it is not, we intend to do something about it, or at least make every effort to try to do something about it.

The CHAIRMAN. Senator, thank you very much.

Senator Irving Mosberg?

STATEMENT OF STATE SENATOR IRVING MOSBERG, SIXTH DISTRICT, NEW YORK

Mr. MOSBERG. My name is Irving Mosberg, representing the Sixth Senatorial District in the State of New York.

Mr. Chairman, honorable members of the committee, ladies and gentlemen present in the audience—I represent the district that is

most vitally affected by these low-flying planes. I attended a hearing or a conference held in Senator Albert's office several weeks ago. Commissioner Wiley was present, Mr. Blatt was present, and a number of other gentlemen were present. I asked a very specific question that was propounded by several of the members to this committee. When all of the gentlemen spoke of planes taking off, the runways that they were creating or enlarging to permit these planes to take off over the waters, I said to them, "How about the landings?" I said, "These planes, when they land, come practically through our backyard." It was only on Friday of this past week that a helicopter was forced to land on Van Wyck Expressway, fortunately without any serious incident, except for crowds and lots of police to hold the people back.

Now, these planes come down so low that you can practically touch them. Now, I am not going to go in and rehash the statements made by several of the speakers here today. But there is one thing that I want to call to your attention; that is, this doubletalk of landing and takeoff. We are vitally interested in the landings. They must maintain a definite height and not come down to where they could practically be touched from rooftops.

Now, at one time all these planes had their company's name, the number of the plane on the bottom of the wings. They have been removed from the bottoms of the wings and now appear on the top of the wings, so that in the event of a complaint for a violation, nobody can tell what plane it was, what the number was, or anything in connection with the plane.

I maintain that the numbers and the companies should remain on the bottom of the wing, that definite action should be taken to maintain height for landing, and if necessary, let them circle around the airport.

Now, when they speak of enlarging various lanes for which to take off or land, what they are really doing is moving it from one backyard to another backyard. They speak of Brookville Park, that the extension of lane 22, I believe it was—that the landings and takeoffs will come in over Brookville Park. I do not think many of you gentlemen know how large this Brookville Park is. It is a narrow strip of land, I don't believe it exceeds one-half of a mile.

Rosedale is now complaining bitterly of the condition that exists. Now they are going to take it from several other areas, and dump it all into Rosedale, Laurelton—that is my area.

Gentlemen, I hope that we will, in the State legislature, come up with some good ideas that you in the Federal Legislature will coincide and remove this thing. Otherwise, let them go to Maryland. The 22,000 employees, if they are not employed in this vicinity, will be employed in Maryland. They will find employment. We will find rest and peace. Thank you.

The CHAIRMAN. Reverend Endres.

Mr. BRATON. Mr. Chairman, is that Howard Beach? May I speak for them? They have left—with your permission.

The CHAIRMAN. Yes.

STATEMENT OF JAMES B. BRATON, HOWARD BEACH ASSOCIATION TRUSTEE

Mr. BRATON. My name is James B. Braton, Howard Beach Association trustee, also representing the United Executive Democratic Clubs, Inc., Civic Committee—primarily the Howard Beach Association. I had been the president for a period of 4 years. I am not the trustee. Reverend Endres is the pastor of St. Boniface Lutheran Church in Howard Beach, a member of the Howard Beach Association.

May I use your map, sir?

The CHAIRMAN. Yes.

Mr. BRATON. This is Howard Beach. My home is 15954 95th Street, approximately at the corner of this point. As you see, this runway goes directly over Howard Beach.

Mr. WILLIAMS. How far from the end of the runway do you live, sir?

Mr. BRATON. About a mile and a half at the most.

Now, Reverend Endres' purpose here today was to corroborate the statements that pastors of various churches have their sermons interrupted at all times. It violates a constitutional right of the people to practice their religion. They are unable to hear services properly. It also interferes with the economic welfare of 1,000,800 people in the county of Queens. And I would like, with your permission, sir, to give you a few examples.

We here in the vicinity of the airport, that is the whole county of Queens, pick up a telephone to make a business call of one kind or another, and you must interrupt your call while you hear this "zoom." Now, the person on the other end will say, "Hello, hello," and hang up. Many, many times you must make another telephone call. That is expensive—not very expensive, but multiply it by a million, and you will find that our economic problems are almost if not exceeding the operating costs of the airport. We have this in every line in Queens. We can't look at our televisions, we can't sleep at night. And, I don't know, if I may at this time—I don't know about the rest of Queens, but I have been directed by the people of Howard Beach to thank you for a rest last night. Your indications that you were to be here today we felt abated the problem very greatly. And we had a rest last night.

Now, when I appear here as a representative of Howard Beach, speaking and complaining, I would wish to insert into the record the fact that during my term as president of the Howard Beach Association, prior to my term and after it, the presidents of the Howard Beach Association have extended to the port authority of Idlewild Airport our fullest cooperation. We have tried, God help us, we have tried to cooperate and go along with them to the extent that we may be instrumental, or we might have been instrumental, in abating this in a pleasant manner, by sitting down and trying to think it out.

Gentlemen, we are up to here. And I feel that when you said the FAA has the authority, why don't they exercise that authority? We feel that the people of Queens County have gotten to the point, as Mr. Wiley stated, they would hesitate to take drastic action. I don't know, but I feel that the people of Queens County are about ready to call out the Marines—if drastic action is necessary, let us take it. If 22,000

employees will suffer, how about the 1,000,800 in Queens, plus a like amount in Nassau? We suffer. We don't stand in the way of progress. But, by God, when automobiles came, they were allowed to use the road, and subsequently we made laws.

It does not give them the right to run over our lawns, any more than it gives an airplane a right to run through our livingrooms, and they actually run through—not the plane itself, but the noise. You can't confer, you can't do business.

As the representative of the people of Howard Beach, we urgently request of you to help us to attain our peace of mind and to get the authority delegated properly and have it enforced and stop these people from violating our rights. If it is necessary to spend more money to do it, let them raise the price of the fares. Don't take it out on us.

If you have any questions? If not, thank you very much for the opportunity.

The CHAIRMAN. Thank you.

We have a wire from Arthur S. Jarcho:

The Lawrence Association Residents of this village strongly urge you recommend measures curbing existing unbearable aircraft noise at airport.

We have an invitation from Hazel and Edmund Koli, inviting us to come to their home at 131 Beach, 91st Street, Rockaway Beach—

to appreciate impossible living conditions due to low-flying jets and need to have this alleviated.

I am sorry we will not be able to get out there.

I acknowledge an invitation from Mr. Lichtenthal, who lives at Rosedale, 14427 Willer Lane, inviting the committee to his home for lunch, and for dinner, in order to obtain a firsthand impression of what the problem is. We appreciate the invitation and regret that we will be unable to accept.

Dr. Leonard?

STATEMENT OF DR. WILLIAM LEONARD, GARDEN CITY, N.Y.

Dr. LEONARD. My name is William Leonard, and I reside at 208 Houston Road, Garden City. I appear today as a resident of Garden City, and as a transportation consultant; I have appeared before the CAB, ICC and committees of Congress on transport matters. I think all of us here today wish to express our appreciation to the Members of Congress taking their time from a busy schedule to come here and hear use discuss our very urgent problem of airplane noise.

I think you are gratified, as we are, by the turnout of people in this area, which shows how serious this problem has become.

Garden City is an incorporated village in the western portion of Nassau County, about the middle of the island, approximately 5 miles by air from Idlewild Airport. The village is almost a direct line of approach from the north to runway 22.

Gentlemen, we are seriously concerned by the noise of low-flying planes, particularly jets. I have been awakened myself at 1 o'clock, 5 o'clock in the morning, at other times during the night, and the shrill whine of the turbine on the jets adds to the disturbance. My neighbors and I are very much interrupted in our daily lives, our sleep is interrupted, and we feel with the increase in jet traffic, this is becoming an

aggravated problem which only action, definite and determined action, can correct.

The village itself has received many complaints orally and in writing about airplane noise. The local papers carried news on the subject and the trustees have addressed letters to Federal agencies about the situation.

Let me just say now and very briefly, gentlemen, that the construction of parallel 22 by the Port of New York Authority, while it may assist on the takeoffs, still leaves unsolved the problem of landing. I feel that the port and the airlines have not sufficiently faced up to this problem of landings, because if the airplanes approach Idlewild runway 22 or parallel 22 directly they will fly directly over Garden City, Floral Park, and other Nassau communities to the north. And if they fly low, or if they do not follow the prescribed procedures, the noise problem will not be abated. In fact, because of growing traffic, it may be worsened.

Now, you gentlemen heard the testimony here from the Port of New York Authority that they do have the power to shut the airport during the evening hours. I would suggest that Congress strengthen the arm or perhaps the will of the port authority by enacting legislation to give any airport authority or operator the power, with the consent of the Federal Aviation Agency, to deny the right of an airport to a plane when this aircraft company operating the plane does not conform with prescribed rules.

Secondly, I would suggest that Congress consider giving to an airport authority or operator where they do not have it the right to deny the use of an airport or airports under its jurisdiction for a period of time up to 1 month, to an airline which has shown an unsatisfactory record of compliance with the procedures for noise abatement established by the airport in cooperation with the Federal Aviation Agency. This has the advantage of bringing your Federal agency into the picture together with the local airport operator.

Thirdly, I would like to suggest to the legislators whose wisdom on these points is much greater than mine that Congress consider giving the Federal Aviation Agency the authority to compel a pilot to use a preferred runway and preferred plane operating procedures, except in cases where critical safety factors are involved. I heard the reading by Congressman Bosch of the FAA Administrator's opinion on the score of whether they have the authority or not. I would leave it to you gentlemen as to whether they do. It seems to me there is still somewhat of a cloud here as to whether they have the authority or whether Congress has given them enough of a push to get them to use that authority they do have. So I feel that Congress, by acting definitely on this point, of strengthening the arm of the Federal Aviation Agency, or expressing its concern about the safety and the normal life of the people on the ground near the airport, that Congress can do a lot to strengthen the arms of these agencies, as well as to give them the willpower to use what authority they do have, but they are not now using.

Thank you.

Mr. WILLIAMS. Mr. Chairman, may I ask one question?

Dr. Leonard, another witness which preceded you, I believe, in the same general area, testified a few minutes ago that these planes habitually and regularly came over your section at an altitude of 150 to 200 feet. Do you make the same assertion?

Dr. LEONARD. Well, sir, I have seen planes myself at altitudes as low as 500 feet 5 miles away from the airport. I have not seen any at 150 feet, except those from Mitchel Field. But we are accustomed to the noise of the Mitchel Field planes. We are not against transportation. We realize there is some noise accompanying aviation. But it is these jets, I think, that are bringing a new element into the picture, because they have a distinct penetrating shrill and disagreeable sound. And when they fly low, and they do, I think we have a right to complain. We certainly are interrupted in our normal life.

Mr. WILLIAMS. How far is your area from the runway?

Dr. LEONARD. Five miles, but we have planes flying at 500 feet at that distance.

Mr. WILLIAMS. Thank you, sir.

Dr. LEONARD. Thank you, gentlemen, for your consideration.

The CHAIRMAN. Mr. Louis C. Moser.

STATEMENT OF LOUIS C. MOSER, REPRESENTING NORTH QUEENS HOME OWNERS CIVIC ASSOCIATION OF JACKSON HEIGHTS, INC.

Mr. MOSER. My name is Louis C. Moser. I represent the North Queens Home Owners Civic Association of Jackson Heights, Inc.

I have been sitting through this hearing since—I have been here since a quarter of 10. I have been listening very attentively to the discussion that is going on. I was going to open up my briefcase, and discuss many problems. But I happen to be a member of the Borough President's Committee on Aviation Problems for 8 continuous years. I have not missed one meeting in those 8 years. I was also one of those who traveled down to Washington on August 26 to discuss with our Congressmen representing both Queens and Nassau with an effort to seek some aid.

Now, gentlemen, there are some things people like to hear and some things people don't like to hear. If there is anything I don't like is when people come to a hearing, they take up a lot of talk about things they know very little about.

I am not going to discuss with you whether the planes have to come in or go out, or whether they turn right or go left over water or housing. We know those things have to be done, because the plane could not function. We also know that there is noise, and you can see that. We also know, as of this day, the chairman has pointed out to us, that the FAA has jurisdiction over the noise problem. It was distinctly read to us by the chairman. But I disagree with the chairman. I will take 20 attorneys and 20 judges to read that paragraph in the law, and they will define it 14 different ways, because one of the things that is wrong in that legislation, though you have words, they are not defined.

We live in Jackson Heights, and within a short community of only a mile and a-half from runway 22, there are 90,000 people residing there. We are in the heart of the city of New York. And no matter which way the plane comes, from any one of the runways, they must

strike some part of the city of New York, whether it be Bronx, Brooklyn, Manhattan, or Queens.

We have our trouble with the conventional plane. I live a quarter of a mile from runway 22, and I am not a newcomer. I moved there in 1939. And many times I hear many of our Congressmen say, "Why did you move close to the airport?" That is a ridiculous statement, because the person buying that house has absolutely no knowledge of what the airplane noise is going to do to their family life, none whatsoever.

You hear a remark here from Baltimore, seeking our commerce from the city of New York. Now people are ready to throw away our airports, make Baltimore happy. New York is a big city. It needs a lot of business from all types of sources.

There is only one thing involved in this discussion today, and that is noise. A plane can pass my roof within 1 or 2 feet, and I wouldn't care. He can come in right or left or underneath, and still I wouldn't care. But if that plane is noiseless, no one will complain, and all the people assembled here today will no longer complain.

Now, that is your job. You are our Congressmen. I spoke to Congressman Emanuel Celler on August 26.

Gentlemen, there seems to be a division of opinion as to what we are seeking. We are seeking to retain our airports and, at the same time, we are seeking peace and security. We are gambling with our lives every time a plane comes off that runway. We have been fortunate that it only happened in an accident where 65 people lost their lives on the other end of the runway 22. We take those gambles with you for the sake of progress. But we are entitled to rest—peaceful rest.

We say that your law should be defined. I know how it is in any business. No employee, and that is what your FAA is and your port authority is, an employee of the Government, will do anything unless it is defined in black and white in large letters—you shall not do this, and if you do, this is what is going to happen to you. If I blow my horn today down here, even at the airport, I could get a summons or fined $10. We need not only regulations and requirements distinctly defined. We need enforcement with penalties, and then you will find that the airplane companies will live up to it.

Now, we get down to noise equipment. On our committee, we were told, constantly, they are working on it. There is a statement made, $10 million has been spent. Our chairman asked us a question, if it is impossible to stop the noise, would you be willing to get rid of your airports? Gentlemen, that is not the American way. Nothing is impossible. If we could attempt to reach the moon, we certainly can make some definite attempt and success toward eliminating noise.

I have devoted 8 years of my time, day and night, many hours, and throughout the summer. On August 26, I had to run down to Washington and come back here to worry about another problem, right in Jackson Heights. And to show you how the law doesn't work the right way because it is not defined—we have an air corridor on runway 22 going southwest, in which the port authority removed 57 homes because of the unsafe condition. Now, the park department comes along and wants to put a playground in the same area where they removed the homes, because the children will have some place

to play, and there is no longer danger. How ridiculous can we be?

I say to you, as Congressmen, this is a serious situation as about the noise out in Laos. It is just as serious a situation as anything that you can think of. I wish you were in my home one night when the plane came through, and perhaps my wife was dreaming of something at that moment. And suddenly the plane comes roaring. And it doesn't go above 75 feet above my roof. My wife jumped out of bed completely frightened and it is hard to control her. These are conditions these people are suffering. As I said before, we will gamble with chances of planes falling. But it is your job, as Congressmen, to see that you protect our American rights to peace and quiet, and a happy enjoyment of our homes.

That is all I can say to you. Define your law. As I said, your employees will comply if you tell them what to do. Don't let them tell you what they think they should do.

Thank you.

The CHAIRMAN. Thank you very much, Mr. Moser.

Mr. Harold Felton?

STATEMENT OF HAROLD FELTON

Mr. FELTON. My name is Harold Felton. I live about a mile and a third off the end of runway 422 at La Guardia. I bought my house in 1938, before La Guardia was built. In that area, we can have 900 planes, Mr. Moser has just described, in 3 consecutive days and nights, and have had them.

There is a tendency nowadays to think of jet noise instead of airplane noise. We, from La Guardia's overreaching runways, urge upon you the sense that propeller aircraft noise is far too loud and louder than it has ever been. And propeller aircraft noise is the noise against which the Port of New York Authority measures the jet noise about which you have heard so much.

Voluntary noise control which we have had has been a failure. It should come as no surprise to anyone to discover that the air transport industry has failed to curb its own excesses. No industry ever has. It requires no more or less than intelligent, determined, and responsible government.

Something called the National Air Transport Coordinating Committee has made sounds for 8 years that were well calculated to make the uninformed and the uninterested believe that the noise problem has been largely resolved. Its complete failure is quite clear to anyone who takes the pains to inquire. Lately the Port of New York Authority has thrust itself into the act. It has adopted the same fiction that the NATCC has always used, and that is that you can control noise by press releases and by press agentry.

Almost every month the Port of New York Authority scolds the airlines about the noise. And when it does it confesses its own inability to control the noise, much less reduce it.

It has even caused noise studies to be made by the Bolt, Beranek, and Newman firm, which prove that Queens County is a God-forsaken area and even, we think, a government-forsaken area.

Now, Dr. Leon Beranek has tapes which will show you, without any doubt, right here in this room, exactly the kind of noise we have

in our bedrooms. We have tried for a long time to get the Port of New York Authority to let us see what they think our noise is. And you gentlemen can call upon the Port of New York Authority, and on Dr. Beranek—Dr. Beranek is an eminently skillful scientist, and he can reproduce, in your committee rooms, the noise we are complaining about.

And now the Federal Aviation Agency is slipping into the act. The Administrator was quoted, not so long ago, as saying that the Agency can and does have power to control this noise. If that is so, this is a complete denial of everything that the Federal agencies have said for the last 20 years.

It is true that the Director has made, as far as I know, no clear and no direct statement. But those of us who have observed the characteristically characterless manner of the air transport world know that he undoubtedly contemplates more noise control by press release. And that isn't what we need. The remedy here is very, very simple.

We need no more than a little candor and a little bit of determination. Congress has either delegated or derogated or surrendered its authority in the past. And it has been done for too, too long a time. The failure to control this aeronautical noise has been the greatest failure since that of the fire department of the city of Rome when Nero fiddled. It is now time, I suggest, for Congress to quit "fiddling," and give us homes that are fit and decent to live in.

The standards are very plain and very simple. We want no more than the degree of quiet that people were entitled to expect in their urban residences.

Thank you very much.

The CHAIRMAN. Thank you, Mr. Felton.

Mr. FLYNT. Mr. Chairman, I have one question I would like to ask.

You spoke about the responsibilities and duties of the Congress on this. You are aware that under our constitutional form of government that the Congress makes the laws, and it is up to the executive branch to enforce those laws and administer them?

Mr. FELTON. True.

Mr. FLYNT. Do you remember the statement read by the chairman? Do you agree that that covers it?

Mr. FELTON. When the chairman read it, it is the first responsible person I have heard say—and I have written to these people for 20 years—the first responsible person I have ever heard say that the Federal Government had the authority—that the FAA or the agencies had authority to do this.

Mr. FLYNT. That is all, Mr. Chairman.

The CHAIRMAN. I didn't mean, when I read what I did, which was the law, that the responsibility of the Administrator of the Federal Aviation Agency was to ignore all the other problems involved with aviation in order to try to solve just one. That is the difficulty which the Administrator has. He is also charged by the Federal Aviation Act, as an Administrator to promote aviation as a mode of transportation in the interests of the American public and our national defense. So it is the responsibility of the Administrator not only in a policy statement of the public interest, but also, as Mr. Williams called to my attention a moment ago, another section in connection with research and development planning, means he must take into considera-

tion in carrying out his duties and responsibilities other factors affecting all the people of the country.

Mr. FELTON. Yes, sir; that is right. But there is one field he has ignored completely, and that is the noise problem.

The CHAIRMAN. Well, I disagree with that completely. And I think if the gentleman knew what the Agency had done itself, and if it was appropriate here, I think we could show you a lot of the things——

Mr. FELTON. I am sure everybody would love to hear it, sir.

The CHAIRMAN. What the Agency has done, and the research and development.

Mr. FELTON. Right, sir, it is crowned with failure.

The CHAIRMAN. Perhaps so, but not the progress of the American people.

Mr. FELTON. Progress is a many-sided thing, and one of the least of those elements of progress is the right to sleep in your own home, and live in it.

The CHAIRMAN. Thank you very much.

The committee will adjourn until 2:30 at which time Admiral Rosendahl will be the witness.

(Whereupon, at 1:30 p.m., the committee recessed, to reconvene at 2:30 p.m. the same day.)

AFTERNOON SESSION

The CHAIRMAN. Let the committee come to order.

One gentleman that we did not get to this morning whose card I had, was Mr. Samuel E. Seigel.

Mr. Seigel, we will hear from you.

Mr. SEIGEL. Thank you, sir.

The CHAIRMAN. Would you identify yourself for the record, please?

STATEMENT OF SAMUEL E. SIEGEL, CHAIRMAN OF THE AIRCRAFT CONTROL COUNCIL, NASSAU COUNTY, N.Y.

Mr. SEIGEL. My name is Samuel E. Seigel. I live at 5401 Conway Road, Nassau County. I am chairman of the Aircraft Control Council of Nassau County, which has members located variously between New Hyde Park, Floral Park, Elmont, Valley Stream, and some residents in the various towns of Five Towns. I am, incidentally, disaster chairman of the American Red Cross for Elmont. I am not here in that capacity at the moment, but naturally I am very much concerned with certain things.

Now, I don't want to take up too much of your time, because much that has been said here already is in this speech that I prepared from the facts of my investigation. However, I can readily say——

The CHAIRMAN. You can put it in the record, if you desire.

Mr. SIEGEL. I don't think that will be necessary, because it will only duplicate the record now. But I can say as an attorney I have found that there are certain facts which are inescapable.

My investigation in the last several months has indicated to me a very surprising fact. We have a multimillion industry within a community that is dependent upon the commerce, both for salaries and material supplies, manufactures, et cetera. I do not believe the fact

when I heard that there is absolutely no coordinated effort to control, regulate, or enforce this particular business. Now, if any of us had a business or a profession of any kind and we were to conduct a business in such a haphazard way, I believe we would be out of business in 5 minutes. The fact that a unilateral voluntary agreement among such a large industry which can be not enforced or regulated, except by its own members, and then it is not done, is a surprising indication that there has been a lack of planning, foresight, and vision.

I attended the meeting recently held at Senator Albert's office, and he has given you basically all the ideas that I would like to have brought forth.

Now, we had asked the various agencies, including the FAA, Admiral Rosendahl, and the other authoritative people there, what plans or what regulations or what ideas did you have prior to the jets coming into Idlewild. And I did not get a satisfactory answer. I said, "What plans and what ideas have you had for future indications of increased traffic and passengers?" No answer, no plans.

Now, as I indicated at that time, it is like Topsy, just grew up. True, safety is an important element. And having been in the Air Force during the war, I am quite aware of what flying is. And like the sergeant who was once asked "How many engines do you want to have on a plane," he said, "As far as my eye can see." True, emphasis has been made upon the safety of the planes. But I call your attention to this, sir. And, Mr. Chairman, you made a comment, I believe, before in your inquiry in reference to what other facilities do we have in this area. I don't think that you were informed of this fact.

Investigations have revealed there are other facilities in Long Island, particularly MacArthur Field. Now, according to the figures given by Mr. Wiley and others in the port authority, the traffic here is approximately 5 million people a year. I may be wrong, but it is an enormous figure. That is expected to double by 1962 or 1965. I understand, also, that the jets are now replacing all propeller-type planes, so that the increase in passengers, increase in freight and increase in number of airplanes to jet is going to not only give us—double the condition that we now have, that I think we should plan for 5 years from now.

Now, I don't want to go into any more of these details, but I can offer one or two constructive suggestions.

I do think that there should be a uniform air traffic code similar to your traffic regulations. I do think that we should not have any hedging or passing the buck of any governmental agency.

I believe that if the pilots of planes knew that they had to adhere strictly to a certain traffic lane under certain conditions there would not be this voluntary hodgepodge of landing planes or coming down. I also feel that the airlines themselves should adhere to certain traffic regulations and that a necessary agency should be given the enforcement powers to put these laws into execution.

Now, I would like to call your attention, in conclusion, sirs, just to two things. I, too, was surprised to hear that the chairman of this committee was—who very ably stated that there are laws on our statute books now. True it is there may be a misinterpretation of that particular language, and I think it should be very specific and explicit.

Now, General Quesada is the apparent Administrator of the Federal Aviation Agency. I don't think it will be denied by anyone that up until a recent hearing at your executive closed session, General Quesada made a statement for the first time that he thought his agency had some powers or authority to enforce certain rules and regulations.

Now, I am very happy to hear that that is a fact. That will save a lot of time. However, may I call your attention to the fact that in yesterday's Times, on the sports section, page 11, which has to do with aircraft noise and aircraft, General Quesada stated—incidentally, for your information it was headed "Protest over jet noise mounts to a new pitch around airports, which includes San Francisco, Los Angeles, and New York." I would like to call your attention to the last paragraph:

The Federal Aviation Agency is sturdily resisting demands that it take action to reduce noise annoyances. It is convinced not much could be done at present unless the protesting groups wanted to ruin commercial aviation. And it believes the noise problem must be settled largely on a community basis and not by the Federal Government.

I say to you, sirs, that the head of a responsible governmental agency did either make a statement—either he was misquoted, or he does not know the functions of his job. Now, if he doesn't know that, we should get someone who does. But that is not the point. We should have a definite air traffic control agency with the necessary laws explicitly stated whereby the lines will not voluntarily and unilaterally agree or not agree as to what they see fit.

In our Aircraft Control Council we are prepared to have a regular engineering department. We have an engineering committee of aeronautical engineers who are prepared to show that this noise can be abated, and that there are various aircraft proposals made in the operation of these planes which, if enforced, will no doubt help the communities nearby.

I would like to just conclude with a statement that General Quesada said in reference to planes—reference to homeowners who have come to live in a community where an airfield had already existed. This is from the Herald Tribune of September 1. General Quesada stated—he "recommended that communities consider buying land adjacent to airports and make it into a public park." I recommend as a further thing that there should be a trough or a channel in any particular phase of these runways, and if we have to do it by eminent domain to do that, I think that such legislation should be done. He went on to further say that this would reduce complaints because most grousing about jet noise comes from homeowners in the neighborhood. I hardly think that such a statement is necessary to come from the head of such an important agency.

I do feel that this is not an elementary thing to resolve. I think that it is a long drawn out problem, and I am quite sure that every man and woman in this meeting today would be only too glad to go further into it and help you.

Thank you very much, sir.

The CHAIRMAN. Thank you very much.

Admiral Rosendahl?

STATEMENT OF CHARLES E. ROSENDAHL, EXECUTIVE DIRECTOR, NATIONAL AIR TRANSPORT COORDINATING COMMITTEE

Admiral ROSENDAHL. Mr. Chairman, and gentlemen, my name is Charles E. Rosendahl. I am the executive director of the National Air Transport Coordinating Committee.

In the understandably short notice that we had, it was not possible to prepare a briefer statement than I have prepared. However, I will abbreviate it as much as possible in my presentation of it.

But, first, lest it slip my mind, I think there should be an understanding that the extensions of runways and the installations of new runways are paid for by the airlines themselves. Consequently, they are contributing that amount of money and effort toward the solution of this problem, as far as it derives from that building of runways.

NATCC is a voluntary, unprecedented, intraindustry committee formed in February 1952. Its mission is to coordinate civil air transport operations in the metropolitan New York-New Jersey air terminal area so that these operations will involve the least possible aircraft annoyance to residential areas in the vicinity of Teterboro, Newark, La Guardia, and New York International Airports.

Attached hereto is a full membership list of NATCC from which it will be seen that in addition to all the civil air carriers operating in this area and certain other organizations, this membership includes the Air Line Pilots Association, the Civil Aeronautics Board, the Federal Aviation Agency, the Aerospace Industries Association, the Air Transport Association, and, to the extent of contribution to the financial support of NATCC, the Port of New York Authority, operators of the subject airports.

Recognition of the high priority accorded this aircraft noise problem by the industry could have no stronger affirmation than is shown by it policymaking executive committee comprised of Capt. E. V. Rickenbacker, of Eastern Air Lines; C. R. Smith, of American Airlines; Orval R. Cook, president of the Aerospace Industries Association; and Clarence N. Sayen, president of the Air Line Pilots Association. Busy as these men are with the many matters confronting an important rapidly growing industry, they have nevertheless taken direct interest in this industry activity in behalf of their airport neighbors.

Further corrobation of the industry's attention to the noise problem is the character of the membership of our technical committee comprising, as its chairman, John Groves, who is regional operations manager of the Air Transport Association, who has been a qualified pilot and in civil aviation for 30 years, has had long experience in executive positions, with the Civil Aeronautics Administration, and for some time was manager of the Washington National Airport; R. J. Sutherland, with long experience as airport facilities engineer for American Airlines; Capt. J. D. Smith, an active aircraft commander for Capital Airlines, also regional safety chairman for the Air Line Pilots Association, and 1957 winner of the ALPA National Safety Award for his work in air traffic control development.

Fourth, but by no means least, is Joseph D. Blatt, regional manager for the Federal Aviation Agency, who has had a long career in aviation and is intimately acquainted with the aircraft noise problem.

There could be no more emphatic evidence of his recognition of the problem than his personally becoming a member of the NATCC technical committee. Three of these gentlemen will participate in our presentation and be available for your questioning.

Before making the technical committee available for discussion of technical details, let me review very briefly some of the broad considerations which must be taken into account in working out aircraft noise abatement techniques.

The first step taken by NATCC was to review flight operations in this area as they were being conducted in 1952. This review established that much could be done to reduce low-level flight over residential areas. The second step was to establish a complaint center to which the public was invited to report aircraft operations which it was felt were unnecessarily noisy or annoying. This complaint center has continued in operation. It not only listens to complaints but also investigates them; it then calls them to the attention of NATCC, and through NATCC, to the airline operators, in a joint endeavor to find a remedy. Next, traffic clerks were placed in the control towers at Newark, La Guardia, and Idlewild, for the purpose of keeping 24-hour chronological logs of aircraft operations, as the basis for our investigation of complaints.

Back in early 1952, NATCC placed in effect the industry's program for conducting air terminal operations with the minimum possible annoyance to the airport neighbor, always with safety as a paramount consideration. The keystone of this NATCC program is the preferential runway system whereby first choice for takeoffs and landings is given to those runways which lead over water, open areas, or the least populated areas adjacent to the airport. Despite the necessary limitations on such a system, it is unprecedented departure from traditional flight practice which has always dictated use of the runway most directly alined into the wind. Here are the considerations which govern use of the preferential runway system:

(*a*) When weather conditions permit VFR (visual flight rules) operations and there is no compromise to the safe movement of aircraft operating IFR (instrument flight rules) within the airport control zone.

(*b*) When winds are 15 miles per hour or less.

(*c*) When the direction of the wind is within 80° of the runway heading except that when winds are 5 miles per hour or less the preferential runway may be used when the wind is within 90° of the runway heading.

(*d*) When runways are clean and dry.

(*e*) When there are no obstructions adjacent to the runway.

(*f*) When there are no unusual obstructions in the flight path.

(*g*) When the individual pilot concurs.

(*h*) At controller's discretion.

Such considerations are wholly obvious ones, but it should be noted carefully that the preferential system cannot be in effect when operations are under instrument flight rules nor when the wind is over 15 miles per hour. We do, however, accept a wind direction within 80° of the runway heading when the wind is not over 15 miles per hour, and a 90° difference when the wind is not over 5 miles per hour.

In addition, under some conditions we specify turns on takeoffs from

certain runways in order that the aircraft may climb over water or sparsely populated areas. NATCC procedures also call for aircraft to attain at least 1,200 feet of altitude as quickly as possible after takeoff and before turning toward destination, and also to maintain at least 1,200 feet as long as possible before landing.

Also, all training flights, except those required by law to be conducted at a specific airport, have been removed from the major New York-New Jersey metropolitan airports, resulting in some 25,000 operations annually being transferred to other more suitable localities.

The maintenance of aircraft engines requires that they be checked at various speeds on the ground. Where this runup noise has presented a problem to nearby residential areas, NATCC procedures specify that the runups be conducted in designated areas as distant as practicable from nearby communities and use of existing airport structures as sound baffles for the runup noise whenever possible. Also, use of barriers as sound baffles or deflectors is greatly on the increase.

Our preferential runway system has resulted in about 50 percent of all operations being conducted on the preferred runways also are nonannoying.

The proof of the value of the NATCC preferential runway system is that never once has it been suggested that it be abandoned.

The most significant thing we have learned from our study and investigation of complaints about aircraft noise is that the problem cannot be accurately gaged directly or mathematically by either the volume or the nature of such complaints. A petition signed by a hundred persons, for example, does not mean the situation is 50 times as bad as if only 2 persons had complained. Some complaints allege that all aircraft operations are annoying. Some state that it is takeoffs that are a nuisance, others indicate landings. Some are against the operations of turbojet aircraft as a whole. Many complaints, fortunately, are specific as to time, identification of the aircraft and the particular operation.

You will find it includes some such busy executives and that helps us immensely in studying this situation.

Reaction to aircraft noise varies almost from individual to individual. It is fallacious to believe that a number of complaints from a given neighborhood indicates that every resident of the neighborhood is being annoyed by air traffic. Our investigations have shown again and again that the reaction of next-door neighbors will differ and even members of the same household will react differently to the same operation or to the situation in general.

One outstanding case history of this aspect of the problem occurred in the summer of 1957. The mayor of Newark had been receiving what he considered to be an alarming number of complaints from the Weequahic section of Newark, just to the west of Newark Airport. The mayor threatened to have the city garbage trucks driven onto the runways if corrective action was not taken.

NATCC had developed a runway usage plan to relieve the problem in Weequahic. We felt that some of the complaints were from people who were not aware that this effort was being made to abate noise annoyance. We sent 19,000 postcards to the residents of the area, explaining that was being done. Thus, at least 19,000 people

were provided with the address of the agency which acknowledged responsibility for the air traffic. From the mayor's reaction, we fully expected to receive hundreds if not thousands of complaint calls and letters. Our total response to that mailing was less than 20 letters. Of these, three were pleas that nothing be done to restrict the operations of Newark Airport.

This does not mean that no aircraft noise problem exists in the Weequahic section of Newark. To the contrary, under certain conditions, there is definitely a problem for varying periods of time. What this experience does prove, in our opinion, is that the extent of the problem cannot be accurately judged solely by the number and volume of complaints.

The actual problem in any given area may be more serious than the complaints indicate, or it may be less serious.

It has been gratifying to note nevertheless, that as far as number and character of complaints are an indication, over the years of NATCC's existence, and up to this summer, there has been a generally diminishing trend in objection to aircraft noise annoyance at the three major airports, despite the steady growth in number of aircraft operations.

During the summer of 1959, however, the problem has become more acute insofar as La Guardia and New York International Airport areas are concerned. A rather widespread belief exists that this is occasioned by the introduction of operations by turbojet-powered aircraft, though La Guardia, having no turbojet operations, is only indirectly affected.

With the advent of turbojet transports, the airport operator chose to set up certain recommendations of its own, for the takfleoffs of such craft. It would appear that by its public applause of some airlines for adhering completely to these recommendations, and by its public condemnation of others, the airport operator has contributed greatly to the belief existing in the minds of airport neighbors and civic and public officials, that lack of full conformance with its turbojet takeoff recommendations is the core of the present aircraft noise situation at Idlewild.

Responsibility for rules and regulations which govern the flight operation of aircraft lies with the Federal Government, and not with any other agency. You gentlemen, having been in on the drafting of the legislation of the act, I am sure, appreciate that as much as anybody.

It is, in our opinion, not appropriate that the airport operator seek to enforce flying regulations which are appropriatly the responsibility of the Federal Government. Safety in air transportation will not be gained by a duplication in flying regulation.

While the airlines and NATCC are wholeheartedly in favor of working with the airport operator for the reduction of noise, as they have done and will continue to do, there would be less confusion and there might be more result if the airport operator would not endeavor to form and enforce rules in an area which has logically been reserved to Federal jurisdiction.

We feel that the time has come, in the public interest, to present the actual facts of the matter. The problem under discussion is sufficiently serious and complex enough without the introduction of additional confusion.

On a typical day in August, there have been some 690 takeoffs and landings in a 24-hour period, at New York International Airport, and of these, 22 have been turbojet takeoffs and 23 turbojet landings. This makes a total of 690 operations. The 22 turbojet takeoffs, the operation with which the airport operator is concerned exclusively, thus constitute a little more than 3 percent of the total operations.

In its latest public report, read to you here this morning, the airport operator states that 74.7 percent of the turbojet takeoffs, an average of 22 per day during August, conform to its recommendations.

This leaves 25.3 percent of 22, or about 6 takeoffs daily which it apparently believes cause noise annoyance which is considers intolerable. Although the periodic letters to community leaders and occasional press reports do not say this in so many words, the airport operator's campaign unmistakably implies that if the allegedly uncooperative operators of turbojet aircraft would cooperate and make these six average daily takeoffs conform to the airport operator's recommendation, the problem would be solved, to at least a large degree.

It is the considered opinion of NATCC, fully supported by the Federal Aviation Agency, that this public action by the airport operator is so misleading as to be damaging to the entire industry effort toward reduction of the problem.

Based on scrutiny of the operations logs, many ground investigations, and contacts with airport neighbors, our experts firmly believe that if all turbojet operations, including the six daily takeoffs alleged to be the cause of intolerable noise, if indeed all turbojet operations were discontinued, there would still be a noise problem.

First, as we all know, we have had in this area an extended period of extremely hot and humid weather. This weather has been accompanied by low visibility and southerly winds, which together have required the use of runway 22 at New York International Airport for many landing operations which would ordinarily have been conducted on runways more desirable from the standpoint of noise abatement.

The majority of our complaints from New York International Airport neighborhoods this summer have been complaints about landing operations, rather than takeoff operations.

We have made a review of the effects of those turbojet takeoffs which the airport operator alleges cause intolerable noise because they do not conform in all respects to its recommendations. These airport operator provisions comprise primarily:

(1) Creation of noise, in passing over certain points, not in excess of 112 perceived noise decibels, a value which must be computed after each operation;

(2) Operations on only certain runways; and

(3) No takeoffs between the hours of 10 p.m. and 7 a.m. except on two particular runways.

In our appraisal of these published "violations" of the airport operator's recommended procedures, we used such "violations" by one carrier for the months of June, July, and most of August 1959, and by another carrier for 27 days of August of this year, these being the data available to us at this time. These total up to 343 "violations." Of these, some caused airport neighbors to render specific complaints, the vast majority did not. Yet the airport operator's public statements tend to create the impression that turbojet takeoffs which conform to

its mandatory rules cause no complaints and those which do not conform cause complaints.

This is not accurate in both instances. Some conforming takeoffs cause complaints. Many nonconforming takeoffs do not.

In this appraisal, we have used those complaints directly attributable to particular takeoffs cited as "violations," though admittedly some others of the "violating" takeoffs may have contributed to complaints of a general nature or have been reported to other agencies. The point is, however, that specific complaints were made in some cases, not made in others.

The total takeoff "violations" used in our appraisal amounted to 343. Only 71, or 21 percent, or one-fifth of this total of 343 turbojet takeoffs resulted in complaints. Thus, 272, or 79 percent, of these takeoffs in "violation" drew no specific complaints from airport neighbors to NATCC.

Thus, the facts do not support the strong inference of the airport operator's publicity program, to the effect that compliance with its recommendations would provide the remedy for the program.

Other factors which have contributed to the present situation at La Guardia and New York International Airports have been runway closures for construction work, and airspace problems which have limited the execution of noise abatement procedures. We are hopeful that the airspace problems will be resolved very shortly, following intensive continuing study which has been conducted by the NATCC Technical Committee and FAA air traffic control experts. While it is necessary that runways be periodically closed for maintenance purposes, NATCC has often urged the airport operator to schedule these closures so that they least compromise our noise abatement program, and we have been assured of full cooperation in this respect.

It has been our finding that the turbojet has, of course, contributed to this summer's situation, but only in a secondary way. Complaints have primarily been about a high volume of landings by large four-engine piston aircraft. The typical complaint says, "and then we get the jets."

It should be remembered that there is substantial difference in public opinion about the "variety" of the noise. Some become more irritated by the noise which is produced by the piston-engined airplane, others find the noise of the jet airplane more disturbing. On the long-pull outlook it is not certain that the increasing number of jet operations will increase public irritation over their operation. Perhaps so, and we will know only from experience, but the growing trend toward installation of the quieter fan-type jet engines by the airlines holds much promise for reduction of irritating noises.

We would urge, therefore, that in the interest of improved public understanding of the problem, the airport operator discontinue its campaign, or at least qualify its allegations so that those sincerely interested in a constructive approach to the problem will not be misled or confused.

Unfortunately, the discussion of the noise problem in the New York area always seems to arouse strong emotional reactions. This has resulted in any mention whatsoever of the economics of the situation being treated as a bad word. The immediate response from a number

of segments of the pertinent public is that "the airlines are putting dollars above human welfare."

At the risk of having this charge again leveled, we think it is imperative that some cognizance be taken of the economic realities of the situation.

Perhaps the best way to cover this matter briefly is to refer to the latest development, the well-intentioned suggestion by a number of community leaders that operations at New York International and La Guardia Airports be suspended from the hour of 11 p.m. to the hour of 7 a.m. daily. The objective would be to totally eliminate aircraft noise in the area during sleeping hours.

A prohibition which would deprive New York of all air transportation services for a third of the total day would do immense harm to the economic welfare of this community, because it would go a long way toward depriving the people of the community of the great benefits of air transportation. Further, because New York is the principal port of entry for international air commerce, the world-wide position of U.S.-flag air transportation would be severely and adversely affected.

Following the policy that any suggestion for the reduction of the aircraft noise problem should be given thorough consideration, we have done some preliminary research to determine the probable result of such an operation curfew. Here are some of the facts developed:

Such a curfew would mean that air transport service from Los Angeles to New York would be discontinued eastbound at 2:30 p.m. Los Angeles time. Later Los Angeles departures could not reach New York before 11 p.m., eastern time.

Similarly, San Francisco-New York service would be discontinued at 2:30 p.m., San Francisco time.

Miami-New York service would be limited to the period between 7:15 a.m. and 4:55 p.m., since under existing schedules, the next Miami departure could not arrive in New York by curfew time.

Washington-New York service would be reduced by 17 daily flights, plus the elimination of 2 additional nonstop operations during each week.

Similar disruptions of service would occur in St. Louis-New York air transportation, and along many other intercity routes which are served during the later morning hours by aircraft departing New York or scheduled to arrive at New York during the proposed curfew hours.

The effect of such a curfew on mail and cargo transportation by air would be disastrous. Mail and cargo are collected in the city during the afternoon hours, delivered to the airport during the early evening hours, and transported overnight to reach their destinations as early as possible on the next day of business.

The proposed curfew would even disrupt our banking business. Scores of financial institutions use air express service to speed collections on checks.

The inevitable effect of a prohibition on airline operation during the nighttime hours would be to require a substantial increase in the cost of air transportation to the user. This would fall upon all of the services but it would most heavily affect the traveler least able

to pay more, those using "aircoach" transportation, much of which is operated during the "off hours" of the evening.

It would be difficult to escape the conclusion that a prohibition against nighttime operation would bankrupt the airlines. In many cases their financial position and earning capacity are already marginal. This prohibition would be an economic blow from which some of them could not recover.

It is probable that the only alternative to bankruptcy would be a program whereby their operations would be subsidized by the Federal Government.

And finally in this regard, closing major airports for a third of their present operational hours would undoubtedly result in a serious decline in airport and community payrolls. The 29,000 people employed at New York International and La Guardia Airports earned $182 million last year. The one-third closing of these terminals would certainly result in a substantial reduction of this contribution to the economy of Queens.

These same economic penalties, not only to the airlines but to the overall economy of the airport communities, are inherent in such other noise abatement proposals as offloading aircraft or making one-stop operations out of those who are currently nonstop.

We emphasize that it is the firm policy of the industry to give first consideration to flight safety, second consideration to noise abatement, and then the economic requirements of operations. We are not, therefore, by any stretch of anyone's imagination, putting dollars before human welfare.

In conclusion, it may be of value to consider the extreme of the suggestions concerning the abatement of noise; that any and all airports which produce noise which irritates the airport neighbors should be closed and abandoned. The obvious result of a program of that kind would be that the New York community would be without air transportation, entirely without it. You who know the New York community well know that it would be impossible to secure an area of size equal to the requirements of a modern airport which did not have a resident community in its proximity. Further, as you well know, even if there was no community adjacent to the new site one would soon be constructed. Many of the areas which now produce a volume of complaints about aircraft noise were communities of very small population when the airport was constructed. Their growth has taken place since the location and construction of the airport and that growth has taken place with the prior knowledge in many cases that the airport is located in the vicinity.

Yet, there are many insidious ways to close an airport. It can be closed by degrees—creeping paralysis, if you will. Restricting flight operations to the point where air service is crippled is one way to begin the closing of an airport. Restricting the use of runways to the point where an airport is not performing its designed function is another way to begin closing it.

Degrading aircraft by restrictions on weight or other restrictions which make it impossible for the aircraft to perform its function in air commerce is still another way to effectively begin making an air terminal useless.

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These, we submit, are negative approaches to the problem which if adopted at any time in the history of civil avaiation's development, would surely have made our country a second or third rate participant in world aviation.

If, in the future, we adopted any or all of these negative actions, it would also be a step toward permitting the free world's principal civil aviation competitor—the Soviets' Aeroflot airline—to gain the civil air supremacy the Soviets so ardently seek.

We believe that the best approach to the problem is that which is currently being taken on a voluntary basis by the entire civil air industry in close working partnership with the Federal Aviation Agency. This partnership brings to bear on the problem the best technical talent in the Nation. It has already achieved provable results.

There is no more positive evidence of the industry's genuine concern with this difficult noise problem than the literally millions of dollars expended on the development of turbojet noise suppressors and the considerable economic penalties to the carriers incident to the use of suppressors.

The industry is indeed well aware of the aircraft noise annoyance problem and has been for many years, and we are wholly sincere in our efforts in behalf of our airport neighbors in this matter. We are learning more about the problem every day. We are continuing our efforts and intensifying them. We have the problem under continuing review. We promise no complete solution because our present knowledge offers no prospect of a complete solution.

However, the record shows the progress we have made and we have no reason to believe that continued effort and more experience will not result in additional progress in the future.

Now, gentlemen, Mr. Blatt, the regional administrator of FAA, is here to discuss the technical aspects of the situation as you may desire them.

The CHAIRMAN. Admiral, thank you for your statement.

Mr. Williams, any questions?

Mr. WILLIAMS. I believe not.

The CHAIRMAN. Mr. Derounian?

Mr. DEROUNIAN. Admiral Rosendahl, the purport of your statement to me seems there is no need for this investigation by this committee today; just leave it to the airlines, and they will take care of it. Now, I am not buying that because certainly from what I have heard, the airlines are not doing what they can do to abate this noise. And that is why the committee is here today. If you had done what you say you are doing, these people wouldn't be here, and we wouldn't have gotten thousands of letters—Mr. Bosch and I.

So the main premise of your statement I do not accept—but you have your right to say it.

Admiral ROSENDAHL. Well, I would like to say this. I think this meeting serves a very, very useful purpose in bringing this whole thing out into the open.

Mr. DEROUNIAN. Exactly.

Admiral ROSENDAHL. Now, you say that the industry has not accomplished its purpose. Let me just explain one thing about turbojet noise. It was many years before the scientists even knew how the

noise of a turbojet was generated. It took an immense amount of research by the British and by our own NACA before they discovered that most of the noise is created outside of the turbojet, where the hot air, the high velocity gases mingle with the outside air. Then the question is how do we solve the problem, how to reduce that noise to tolerable limits. Boeing alone has spent $10 million, Douglas must have spent as much. General Electric is working on the problem for the Convairs. The NACA has spent a terrific amount of money.

Now, these suppressors that we have today are the very first practical installations. That does not mean they will not get better.

I mentioned also the turbofan engine, which American Airlines has announced it is going to put on all of its planes, and other airlines will probably follow. That is a considerably quieter and even more efficient engine, and that change will be made as it can.

Furthermore, in our study of the problems, we find from day to day little things that can be improved upon—the intelligent complaints we get are very helpful to us, because we study them, we investigate the area, and all the circumstances, and frequently they have led to things that we can do.

There isn't anything revolutionary that can be done. The refinements of the thing are where the promise lies.

Mr. DEROUNIAN. Well, Mr. Rosendahl, can't you importune your member of the association, American Airlines, and to a lesser extent TWA to do what Pan American is doing at International? You make light of the statements that the Port of New York Authority had made on these violations or nonconformances. But why can't you get American Airlines to do the right thing by our airport neighbors?

Admiral ROSENDAHL. The preferential runway system that is in effect at this airport is one that was worked out jointly by the Federal Aviation Agency and NATCC. The carriers all subscribe to that, and that is what they are following. They will follow on the port authority's recommendation when they can do it.

Mr. DEROUNIAN. Why can't American follow it and the other three airlines?

Admiral ROSENDAHL. Well, the point I tried to make in my statement is that the effect of following it or not following it is greatly overemphasized. Actually, it is a very insignificant thing. The actual statistics—the results we measure by to a large extent is what the public thinks of it. And I have given you a sampling of what the public thinks. And, therefore, the great emphasis on following that system, I think, is highly overrated.

Mr. DEROUNIAN. In view of what you have said, I am all the more happy that the committee is digging deeper into the subject.

Admiral ROSENDAHL. I think it is a very fine idea, because not only this community but there are others in the country. This is a broad problem. And I think what you gentlemen come up with will be very helpful in settling the issue in many places.

The CHAIRMAN. Mr. Bosch, do you have any questions?

Mr. BOSCH. I just want to say one thing to the admiral. I was impressed with your statement here that you have very few complaints given to your office with regard to violations. I would like to suggest to you that the reason for it is that they have been unable to get any satisfaction.

Now, I say that not in any degradation of you or your organization. You know I have been in this since 1954, and we have had many meetings together, and I have tried conscientiously and honestly to try to do something to solve the problem—maybe legislation to provide criminal penalties against pilots who violate regulations may be the way we will have to do it eventually. But I know from the mail I have gotten, and since October of 1958 it totals over 9,174 pieces of mail, that there are complaints, and we are getting them every day.

Admiral ROSENDAHL. I have no doubt of that whatsoever, Mr. Bosch, and we are getting complaints, too. I don't think there is anybody around the airport neighborhoods that doesn't know our telephone number and address. We welcome them. It helps us in our study of the problem. We welcome them.

The CHAIRMAN. Admiral, I don't believe I understood just how the preferential runway system was developed.

Admiral ROSENDAHL. Well, sir, the first effort was to direct operations over those runways which lead over water, open areas, or the least populated areas adjacent to the airport.

The CHAIRMAN. Yes, but that was developed by whom? How was that conclusion reached?

Admiral ROSENDAHL. In 1952 the NATCC set up those preferential runway systems for the three airports, Newark, La Guardia, and New York International. Now, since the law requires that aircraft be operated on the runways which are most nearly alined into the wind, and since they cannot take unlimited crosswind components, it was necessary to set a limit on the crosswind values. Therefore, we adopted what I have pointed out here—we would take a wind direction within 80° of the runway heading when the wind is not over 15 miles an hour, and a 90° difference when it is not over 5. Then, of course, under instrument night rules, there is only one way that planes can operate—they must operate on those paths which are designated and instrumented for them. So our preferential system cannot obtain under those conditions.

Furthermore, the other restrictions as you see there are reasonably understood. It is when the runways are clean and dry, when there are no obstructions adjacent to the runway, when there are no unusual obstructions in the flight path, and so on.

The CHAIRMAN. I understand. I read it very carefully, Admiral. But what I was trying to develop is how this decision was made. Evidently it was made by your organization. What did FAA have to do with it?

Admiral ROSENDAHL. I understand your question now, sir. We have a technical committee comprised of the four gentlemen that I mentioned to you—the Air Transport Association has a representative, he is the chairman, the Air Line Pilots have a representative, we have an airport man on it, and then Mr. Blatt, himself, is the fourth member of the technical committee, so that every problem that is weighed by the technical committee has ground into it the FAA feeling on the matter at once. Likewise, the pilots get their chance to say, the carriers get their chance to say. And no decision or no system like this is set up without agreement that that is the thing to do. So that all segments of the industry are represented in the determination of a preferential runway system.

The CHAIRMAN. Now, carrying it out to its conclusion, then, do I understand that this preferential runway system is one that is agreed to, and, consequently, those who operate the control towers have this before them, which they have got to follow in relation to landings and takeoffs?

Admiral ROSENDAHL. That is correct. The FAA designates the duty runways, as they call them, and the duty runways, when there are not runways close to interfere with it—the duty runways are those classified by the NATCC rules that we put into effect on July 1 of this year.

The CHAIRMAN. In other words, these rules or this program here will determine what runway will be used by a particular plane as it lands or as it takes off, as the case may be?

Admiral ROSENDAHL. Generally speaking, that is the case.

The CHAIRMAN. And it is not then necessarily the preference of a particular pilot, as was so related this morning?

Admiral ROSENDAHL. Not unless he has some reason for not wanting to use that particular runway. And that is primarily on the basis of safety.

The CHAIRMAN. Now, suppose a particular pilot did not want to use a particular runway under this program. Does he then have authority to go to some other runway?

Admiral ROSENDAHL. He asks the tower, control tower, for permission to use some other runway.

The CHAIRMAN. And suppose the control tower does not give him permission? Then what?

Admiral ROSENDAHL. I doubt that that has ever happened. But Mr. Blatt can tell you. The pilot is the last authority. In the last analysis he is the captain of the ship, and it is his decision.

The CHAIRMAN. On taking off and landing?

Admiral ROSENDAHL. On taking off.

The CHAIRMAN. Well, that is very interesting to me. I had always had the impression that the control tower operator had the final word with reference to where a plane could takeoff and when he could takeoff.

Admiral ROSENDAHL. Well, actually, he does. But if a pilot tells him for safety reasons he wants to take off on a certain runway, I doubt that he is going to dispute the pilot.

The CHAIRMAN. Well, it is interesting. We will be glad to go into that some more.

Admiral ROSENDAHL. Yes, the FAA man can tell you specifically about it.

The CHAIRMAN. Yes; and I would like to hear from some of the pilots on that subject, too. I had always thought, and I believe it is correct, the pilot is the captain of the ship. But he is captain of that ship when it gets in the air and gets off and gets down. I had never thought, at least, that the procedure was such that the pilot of any ship could do anything he wanted with that ship on the ground, and as he takes off, regardless of what might happen to any and everybody else that might also be coming in or taking off.

Admiral ROSENDAHL. Well, of course, the controller takes all that into consideration. But I suggest, Mr. Chairman, that the FAA, who are responsible for that, give you the precise answer.

The CHAIRMAN. Very well.
Thank you very much.
We will now have Mr. Blatt.
Will you identify yourself for the record, Mr. Blatt.

STATEMENT OF JOSEPH D. BLATT, REGIONAL ADMINISTRATOR, FEDERAL AVIATION AGENCY

Mr. BLATT. Thank you, Mr. Chairman.

Gentlemen, my name is Joseph D. Blatt. I am the regional administrator of the Federal Aviation Agency. I have held that position since June 1958. I have been employed by the Federal Aviation Agency, and its predecessor organizations, for the past 22 years, in engineering, operational planning, research and development, and administrative positions.

As Admiral Rosendahl indicated, I am actively engaged in the work of the NATCC as a member of their technical committee.

Gentlemen, I think first we must all understand that the New York metropolitan area is the most congested, that is continuously congested, and complex airspace in the world. The volume of operations, that is the volume of aircraft departing from, landing at, and traversing this area, the mixture of military and civil traffic in this area, the proximity of adjacent airports, the physical limitations of the airports themselves, and the variations in aircraft speeds—also the random departures of local service, trunk and intercontinental operations, and a combination of fixed wing and helicopter operations, all tend to make the development of noise abatement procedures most difficult and time consuming.

I have prepared here a map of the metropolitan New York airspace. You will notice that this map extends from the Scotland Lightship to the Westchester County Airport, from Mitchell Air Force Base to Morristown, N.J. This map shows the number of airports in this area, and the relationship of these airports to the surrounding communities.

Maybe some idea of the magnitude of the operations can be gained when I tell you that in a normal 24-hour day there are 1,440 minutes. The three major airports, Newark, La Guardia and Idlewild, those three airports alone generate over 2,000 operations a day. That is 2,000 operations every 1,440 minutes.

Now, in participating in the work of NATCC, I have consistently maintained that safety must be the paramount consideration in the development of any procedure. I have been willing to compromise efficiency of operations, that is a decrease in acceptance rate at the airports, a toleration of delays, increase of taxi distances, et cetera. I have been willing to compromise efficiency. But I have not been willing to compromise the safety of air operations.

All NATCC procedures, before they are promulgated, are reviewed by representatives of our air traffic management and our flight standards divisions. These procedures are flight checked if I deem it necessary.

Now, Admiral Rosendahl told you that the keystone of NATCC noise abatement procedures is the preferential runway system. He explained that traditionally from a flight operations point of view,

it has always been considered essential that an aircraft land and take off into the wind. Now, the preferential runway system takes advantage of the fact that the great majority of aircraft serving these metropolitan areas are equipped with tricycle landing gear, and therefore can tolerate some degree of crosswind landing. We have accepted that and have agreed on the development of a system of selecting pairs of runways, that is one runway for landing and one runway for takeoff, for each of the 16 wind directions, plus a calm condition. The runway selected, the preferential runway, the No. 1 runway, the high-priority runway, is the runway that tends to direct the aircraft over water, open areas, the least populated areas adjacent to the airport.

We would not tolerate the selection of any high-priority runway that had a downwind component. And we had to establish an applicable limitation, some maximum wind that we could tolerate. And we have agreed to a 15-mile-per-hour application limitation. This limitation places the crosswind component well within the levels of safety.

The technical committee of NATCC has maintained continuous liaison with research and development activities. We have studied casted gears, we have studied other proposals for permitting increased crosswind operation. But, unfortunately, gentlemen, I would have to announce to you that we know of nothing that can eliminate a crosswind limitation.

Now, well before there was any introduction of jets in the New York area, NATCC developed and put into effect procedures for Teterboro, N.J., Newark, La Guardia, and Idlewild. This past spring, after we had some civil jet operations into Idlewild, we determined that the preferential system in being was not satisfactory, it was not meeting our requirements. Under NATCC sponsorship, I organized a working group, consisting of the best air traffic control specialists and the best flight operations specialists available. This group was given four specific tasks.

Task No. 1: I asked them that, considering no other factors, to develop a runway pairing system for New York International Airport that would provide for the safe and expeditious movement of air traffic.

Under task No. 2, I ask them that considering no other factors, to develop a runway pairing system for New York International Airport that would provide for the most efficient utilization of the runway configuration.

Under task No. 3, I asked them that considering no other factors, to develop a runway pairing system for New York International Airport that would provide for the maximum degree of noise abatement.

Then, under task No. 4, I asked them to take the results of tasks 1, 2, and 3 and develop a compromise runway pairing system, giving consideration to the following, in the following order of priority—safety, noise, efficiency, and the expeditious movement of air traffic. This compromise plan was presented to the representatives of all U.S.-flag carriers utilizing New York International Airport. The compromise plan was accepted by the carriers, and went into effect on July 1, 1959, as the preferential runway system for the New York International Airport.

I would like to remark at this point that the preferential runway system, that is the runway selected for takeoff—this is for all aircraft—did not differ materially with the Port of New York Authority's recommended runway selection system. There is not a basic disagreement in the selection system.

Primarily we give highest importance to the runways 25 and 22 for takeoffs over the bay area. However, the preferential system that went into effect on July 1 included pairings, that is, runways for takeoff as well as landing.

Now, unfortunately, I cannot give you a true evaluation of the effectiveness of the July 1 plan. This has been created by the fact that runway 25 had to be closed for some considerable periods of time due to necessary construction work. This has provided us with an unhappy situation during the summer months. However, any study of wind conditions surrounding—in the vicinity of New York International Airport, would prove that this revised preferential system that went into effect on July 1 will provide for more takeoffs and landings off noncongested areas than any other system that had been in effect before.

But something radically different went in on July 1 that has never been in effect before. With the publication of the new procedures, the Federal Aviation Agency assumed a new role. Not only did the FAA airport traffic control tower controllers accept the fact that these preferential runways would be used as the duty or active runways, but the controllers agreed that they would so direct aircraft departing the airport, so that their paths would cross the least populated areas adjacent to this airport.

Now, during the past few months, Government representatives and the industry have been meeting almost on a continuous basis. We have been investigating procedures and regulations. And as a result of this continuous investigation, NATCC has adopted and promulgated revised and improved noise abatement procedures. I shall attempt to describe some of the more significant procedures to you. I would like to ask Mr. Sonet to help me on the map.

Now, gentlemen, our U.S. standard radar manual for the control of air traffic requires that a minimum of 3 miles separation be established between any two aircraft under radar control. Since the air traffic in the vicinity of Idlewild, and the air traffic in the vincinty of La Guardia are independently controlled by their respective towers, it was necessary, in order to establish a positive guarantee of 3-mile space, to establish a 3-mile buffer zone, a no man's land, an area in which neither controller, that is neither Idlewild nor La Guardia, could vector aircraft. Now, since Idlewild and La Guardia are only 7 miles apart, a 3-mile buffer robs the aircraft of the ability to maneuver the aircraft so that it may well keep out of the populated areas.

The map shows the original buffer that had been in effect. You will notice, on this buffer, that an aircraft departing on La Guardia, on runway 13, in order to go down the Flushing Meadow would make a sharp right turn, go down the meadow, but could only proceed a distance of something less than 2 miles before he had to make a left turn so that he would not penetrate the buffer zone. This meant that we could not take advantage of the open area of Flushing Meadow, and, therefore, we had to turn the aircraft at comparatively low altitude over the Flushing community.

Similarly, a takeoff from 31 left at Idlewild, on a takeoff from 25 in the face of approaching traffic coming up on 4, would have to make a right turn in order to get away from this buffer zone. This right turn created a noise situation actually—a situation northwest, north, and northeast of the airport, the Ozone Park, Laurelton, and Rosedale areas.

We worried what could we do to resolve this situation. We came up with what we consider a rather novel solution to the fixed buffer zone. We have placed into effect at the area between Idlewild and La Guardia what we call a floating buffer, a two-position buffer. With the buffer in position No. 1, an aircraft departing on runway 13 at La Guardia can proceed completely down Flushing Meadow to the Kew Gardens interchange before making a turn left or right. By the time the aircraft has proceeded down the meadow to the Kew Garden interchange, it is at an altitude above 1,200 feet, and should provide a maximum degree of noise abatement in that area—that is the maximum that you can achieve with the location of Idlewild Airport.

Mr. Sonet has shown the difference in being able to come down the Flushing Meadow, to Kew Garden, before making his turn.

Now, this is possible whenever we have a ceiling of better than 1,500 feet and 3 miles.

But we have a tremendous advantage at Idlewild. At Idlewild, on a 31 left departure, or a 25 departure, under all-weather conditions, we are now able to make a left turn on takeoff. This left turn was a difficult thing to achieve because of the proximity of Floyd Bennett Field. However, I must report to the committee that the naval authorities have been most cooperative in not only moving their pattern to the west, that is their VFR pattern for approaches to Floyd Bennett, but have also reduced the altitude of their pattern. This will provide us with adequate separation for the Idlewild outbound and the Floyd Bennett traffic.

Now, in position No. 2, if you notice—in position No. 1 it is impossible to make an approach to runway 13 at Idlewild. We have a second position provided for this buffer whenever it is necessary for Idlewild to circle aircraft to land on runway 13. Fortunately, this condition exists during instrument weather conditions approximately 4 percent of the time, and La Guardia cannot use their Flushing Meadow climbout during that period.

Now, this summer's experience with jet operations at Idlewild convinces us, and I am sure convinces our airport neighbors, that one of the basic problems with jet is not the takeoff, but the landing problem.

An accusation was made this morning that our airport neighbors' experienced a good night last night, and that this was a direct result of your visit here. I would like to believe that their good night's sleep was a result of some very hard work that was accomplished by our air traffic control and flight operations specialists, because just Friday night, NATCC placed into effect the following changes in landing procedures.

Now, before I describe these procedures, I would like to make this as a rather broad statement.

I was impressed with the reports we received this morning from our airport neighbors who live immediately adjacent to the airports. Mr. Chairman, I know of no solution to the close in, that is the resident immediately adjacent to the airport, because if the aircraft is to land,

he must come down to the level of the airport. If we have residents located under the flight paths of the aircraft within a half mile of the airport boundary, I know of no immediate solution to that problem. The landing procedures that I am going to describe are premised on the hope that we are able to provide procedures that will alleviate the noise situation in the general approach area.

Now, one of the most annoying situations we have around Idlewild Airport was created by aircraft who are approaching the airport on the runway No. 4, who have to circle the airport to run on runway 13. These aircraft are coming down the ILS that is serving runway 4 at rather low altitude, cross the airport, go downwind across Laurelton, Ozone Park, on their base leg across Howard Beach, into runway 13 left or right. Now, we wanted to eliminate that problem.

Our method of eliminating the problem has been to establish a minimum airport crossing altitude. Effective Friday, we have established a restriction of 2,000 feet over the airport. Pilots now approaching on runway No. 4 with an intent to land on 13 left or right will get the following clearance. The tower will advise them cleared for approach, cross runway 4 ILS outer marker and airport at 2,000 feet, circle left to land runway 13 left or right. I am rather hopeful that this 2,000 foot restriction will do much to alleviate the situation in the area north and west of the airport.

One of our most annoying landing problems at Idlewild was created by the reverse situation. Aircraft approaching the airport on the ILS serving runway 22, with an intent to land on runway 25, came down the ILS, passed the outer marker, and at a rather low altitude had to make an **S** turn to get on the extension of runway 25.

Now, gentlemen, in a jet, when you are at low altitude, and you have to maneuver, you have to make power setting changes. It is my contention that the increase of power on these aircraft at low altitudes is what is creating part of our problem.

We have resolved this problem by establishing an approach to runway 25, by utilizing the 65 degree radial of the Idlewild omnidirectional range. Not only are we providing for direct guidance of the aircraft by the utilization of this radial of the omnirange, but our airport traffic controllers will monitor this approach on radar, and advise the pilot of his altitude, the altitude he should be at, so that we can hold him at 2,000 feet until he must start his descent. I believe that this type of approach and monitoring will eliminate some of the problems that our friends discussed this morning of dragging over the Long Island communities at 500 feet.

Now, numerous other procedures and changes are under study, gentlemen. The Washington headquarters office has sent three air traffic control specialists to New York to assist me in my study of this problem. Projects are underway to determine whether additional instrumentation—does this problem lend itself to solution by the installation of additional navigation aids, additional instrument landing systems?

I want to assure this committee that in my position as regional administrator, I do not hesitate for one moment to recommend to the Washingon office the expenditure of public funds for the implementation of aids that I believe will reduce this problem.

I want to report that our Washington office has been most cooperative in providing me with the necessary resources. As an example, I would like to tell the committee that through the efforts of NATCC we have successfully removed some 25,000 training operations from this area, that is 25,000 training operations per year, as a result of, partially, the installation of instrument landing system at Taconic River Airport. This provides a training facility away from the congested area.

Now, procedurewise, much can be done. We are exploring modifications that radically divorce us from accepted procedures. We feel if we are to face this noise situation honestly, that we cannot be hogtied by rigid, nonflexible rules. Noise is a parameter that must be cranked into the air traffic control equation.

Now, gentlemen, I know you are asking, "Well, how effective are all of these procedures?" Obviously, the procedures that have been developed in the past have not been perfect, otherwise we would not have this meeting here today. But I do want to call your attention to some quantitative information. That is that in 1952, when noise was already a major problem in this area, in 1952 Newark was generating 280 operations a day, La Guardia 526 operations, and Idlewild 354. Today, Newark is generating approximately 470 operations a day, La Guardia 800 operations a day, and Idlewild 700 operations a day. This is an increase of more than 40 percent of our operations, that is in magnitude, number of operations—an increase of 40 percent since 1952. I, therefore, must feel that these procedures have done something to permit the growth in this area without, in my opinion, greatly increasing the noise. I know that our noise level is very, very high. I know that we must do things to correct the situation. But I want to assure this committee that the Federal Aviation Agency, in cooperation with the industry—and when I say industry I mean the total industry—the air carriers, the aircraft industry turers, the airline pilots, the airport operators, in connection with all of them, your Federal Aviation Agency is attempting to meet this challenge.

Thank you, sir.

The CHAIRMAN. Thank you very much, Mr. Blatt.

Any questions?

Mr. WILLIAMS. Mr. Blatt, I think that your testimony certainly would dispel any idea that anyone might have that your agency is not aware of the problem and is not now busy attempting to provide some relief for these suffering airport neighbors. I, of course, congratulate you on the work that you have done thus far in attempting to arrive at a solution to this problem.

Of course I realize also that you probably have a lot more work to be done, because it is not an easy matter that can be worked out overnight.

I would like to ask you one or two things about the differences in the physical characteristics of the jet aircraft in flight and the conventional aircraft in flight. Approximately what is the angle of descent on approach of a jet aircraft? That is, the usual angle of descent?

Mr. BLATT. Well, from altitude, a jet can proceed at a rate as high as 5,000 feet per minute.

Mr. WILLIAMS. I am speaking on its approach.

Mr. BLATT. On its approach, the jet aircraft basically should have a flatter approach than the conventional aircraft. However, our glide path at New York International Airport is set at approximately 2½°. With a 2½° setting of the glide path, we can accommodate, taking into consideration the rates of the various aircraft, we can accommodate all aircraft that fly into this airport at a 2½° angle.

Mr. WILLIAMS. That would be a descent of 2 feet every 153 feet, wouldn't it?

Mr. BLATT. Appoximately, yes, sir.

Mr. WILLIAMS. Now, in the case of crosswind landings, a jet aircraft landing at, say, 150 miles an hour, has to crab into the wind, we will say, 5 degrees, whereas a DC–3 landing at roughly 75 miles an hour might have to crab into the wind 10 degrees—that is just a guess, of course, but just hypothetically speaking, which would we find the most difficult to cope with in this cross-wind landing? Would you find there is really any difference in the operation?

Mr. BLATT. Yes, sir. The type of gear on a DC–3 which has to make a 3-point landing would have a marked effect on its——

Mr. WILLIAMS. Let's take some other aircraft, then, that uses tricycle landing gear.

Mr. BLATT. We have a swept wing condition on the jet that tends to make this a slightly trickier aircraft in landing. However, I would say that the jet aircraft is no more susceptible to crosswind, that is to the effect of crosswind, than, let us say, a DC–6 or 7.

Mr. WILLIAMS. Is it any less susceptible?

Mr. BLATT. No, sir, not that I know of, sir. I find it pretty much in the same——

Mr. WILLIAMS. The problem is pretty much the same; is that correct?

Mr. BLATT. Yes, sir.

Mr. WILLIAMS. One or two of the witnesses testified that, as far as 10 miles out, it is a common occurrence for an aircraft to fly over at 150 to 200 feet. Have you had any complaints of that kind that far out?

Mr. BLATT. If an aircraft were at 150 feet, 10 miles out from this airport, and I had knowledge of it, that aircraft operator, that pilot, would be in violation of civil air regulations, and by law I would process a violation against that pilot.

We investigate all complaints of low-flying aircraft. When I use the term "low flying" I mean illegally low-flying aircraft, aircraft flying not necessarily because they are creating a noise nuisance, but below the legal level of flight. And an aircraft 10 miles out from this airport, I know of no place that the aircraft could be, except maybe over water.

Mr. WILLIAMS. What is the minimum altitude that you require a plane to make its turn into its final approach?

Mr. BLATT. This would depend upon the pattern of the specific airport. But if I understand your question, I believe you might mean at what angle do we intercept the localizer and the glide path of the instrument landing system.

Mr. WILLIAMS. Yes.

Mr. BLATT. Normally, this is between 1,000 and 1,200 feet.

Mr. WILLIAMS. So, actually, a plane, until it started its approach straight in, should not be, at any point, less than 1,200 or 1,500 feet?

Mr. BLATT. Except in the situation that I described to you of an aircraft coming in on an ILS, and then breaking contact, and having to circle to land on another runway. I described the S turn that was required, coming down on an approach to 22 with an intent to land on 25.

Mr. WILLIAMS. That is all, Mr. Chairman.

The CHAIRMAN. Mr. Derounian?

Mr. DEROUNIAN. Mr. Blatt, assuming that this new pattern that went in on Friday continues, can you state, fairly accurately, that there should be no more noise than has occurred in the last two or three nights since this new system went into effect?

Mr. BLATT. No, sir, I cannot make such a categorical statement. I would have to review what the wind situations were that night. I am not even sure, sir, that the reduction in noise was created by the change of procedures. I indicated it was my hope that that was the reason for the reduction in noise.

Mr. DEROUNIAN. Does this pattern apply only in good weather?

Mr. BLATT. That is an instrument approach—the 65 radial is an instrument approach to 25.

Mr. DEROUNIAN. One more question. This morning a witness stated that he was not able to identify the low-flying planes, because they don't have the number of the plane or the company name on the bottom of the plane. Is that true or isn't it?

Mr. BLATT. I am not prepared to answer that question. I really don't know. I have heard the same witness make the statement before. I am ashamed to indicate that I have not investigated that. I don't know.

Mr. DEROUNIAN. If that is so, is there anything to prevent the FAA from handing down an order that all of these planes will have to have the number and the airline on the bottom of the plane?

Mr. BLATT. There is nothing that would prohibit such a regulation; no, sir.

Mr. DEROUNIAN. Do we submit that to General Quesada, or can you do it on your own?

Mr. BLATT. I cannot do that. I am not a regulatory agency. I implement rules and regulations.

Mr. FRIEDEL. Mr. Blatt, I want to really commend you for your very frank and informative statement. I think you realize the problem of noise. You didn't shirk anything, as far as I could understand.

Mr. BLATT. Thank you, sir.

Mr. FRIEDEL. You stressed plainly, though, and naturally so, safety. And then you mentioned noise, efficiency, and I don't know if you brought in economics.

Mr. BLATT. Yes, sir, I did.

Mr. FRIEDEL. How far have you gone as far as the noise end of it? You know the problem, and you have faced it. But what can we do, or what can be done?

Mr. BLATT. Well, I don't want to be overly dramatic, sir, but I do believe that procedurewise we are merely on the threshold of making procedural changes. In other words, I still feel that through consultation with our Washington office, that many radical changes

in procedures can be accomplished to alleviate the noise situation. But, again, I want to be cautious and state that by this I do not mean that we can resolve, totally resolve, the noise problem purely with procedures, because the close-in situation does not lend itself to this type of solution.

Mr. FRIEDEL. One more question, Mr. Blatt. You said, in your statement, that you would compromise on efficiency but not on safety. Getting back to a previous question, when a pilot is about to take off and is instructed by the tower to take runway 25, and he says, "No, I want to go to runway 22," does he have that right? Doesn't he have to follow the orders of the control tower?

Mr. BLATT. Thank you for asking that question. I should have actually cleared it up in my statement itself, because it had been asked here by the chairman before.

To be realistic, I will phrase your question, if a pilot were directed by the tower that runway 25 was the active or duty runway, and he requested a takeoff, let us say, on 31, would he be permitted to take off? The answer to your question is "Yes." The pilot would have to suffer a delay, because he was requesting a runway other than the duty runway. As long as there would be no interference with other traffic, the airport control tower would permit him to take off on 31 left instead of the duty runway 25. You ask why. Sitting in the airport traffic control tower, we do not know the weight of that aircraft. Runway 31 left is 1,280 feet longer than runway 25. In my opening statement, in my listing of the reasons why noise abatement problems were difficult to resolve, one of the factors I mentioned were the physical limitations of the airport itself. Runway 25 cannot accommodate all required takeoffs, cannot accommodate them legally or safely. In some cases, under certain weight and temperature situations, it would be illegal to take off on the preferential runway. We cannot order a pilot from the tower to disregard Civil Air Regulations and take off, let us say, a 247,000-pound Boeing 707 in a 90° temperature on a 10,000-foot runway. The safety of that aircraft is in the hands of the pilot, and under no situation would we permit our air traffic control tower to order a pilot to take off on a runway that he considered illegal or unsafe for the operation of that aircraft.

Mr. FRIEDEL. Well, that is very fine, but the point I want to know is this. Does the pilot tell the control tower why he wants to change? Does he say he is overweight?

Mr. BLATT. No, sir; he does not.

Mr. FRIEDEL. No reason whatsoever?

Mr. BLATT. That is correct.

Mr. FRIEDEL. That is all.

Mr. BROCK. Is the control tower authority, Mr. Blatt, any different on takeoff than it is on landing? You can direct them into a certain runway providing wind conditions are correct, and they do not veto—the pilot does not have the authority to veto that order?

Mr. BLATT. It is very, very rare. But if you ask may he, the answer is "Yes." The pilot does not have to accept. He may request another runway. Under this situation, he might lose his place in the landing pattern, he may be sent elsewhere to hold before we could possibly vector him around to that area.

Now, I do want to make it patently clear that Mr. Wiley stated this morning that we must provide a haven for the aircraft in the air to land. There are many times when a pilot requests action, and he receives it. This does not mean that he is necessarily scot free. If what he does is in violation, we will clear him—but, for example, a pilot might request a clearance to land well below his legal minimums. The tower will not deny him clearance to land. The tower will give him clearance to land. But if he lands below his minimums, he is, of course, in violation, and a violation is processed against the pilot.

So, I think that I would like you to clearly understand the difference in function between our enforcement of regulations and the control of air traffic.

Mr. WILLIAMS. Will the gentleman yield for a question along those same lines? When a pilot asks for a change in runway for taking off or for landing, it is generally assumed, I presume, that that is for safety purposes in the operation of his aircraft?

Mr. BLATT. Yes, sir.

Mr. WILLIAMS. I can recall, back in my old World War II days, when I have requested an alternate runway for takeoff purposes, or for landing purposes, simply for my own convenience in taxiing, for instance. Now, whether you have that problem here or not I don't know. But I can remember requesting another runway because I didn't want to have to taxi for half a mile out to the end when there was one a hundred yards away. Now to what extent might the convenience of the pilots play a part in their requesting an alternate runway?

Mr. BLATT. The only way I can answer your question, Congressman, is that I personally attempt to conduct a pilot education program. As close as 10 days ago, I met with representatives of the safety councils of the Air Line Pilots Association—that is safety representatives of all of the carriers. And we discussed, on a jacket-off, sleeve-rolled-up basis, the need of pilot adherence to noise abatement procedures. I think we have to assume that we are dealing with a responsible group of people who realize that the future, their own future, depends to a large extent on their adherence to these procedures. The pilot group is very, very conscious that their jobs, their good jobs, are in jeopardy.

Mr. HEMPHILL. I want to tell you that I appreciate your statement, and I believe that your Agency is trying to do something about it. In keeping with your testimony a minute ago, that you have recently not only changed the buffer zone, but made certain other LLS approach changes, is there any way for either the control operator in the tower or the radar operator or someone else with electronic equipment to monitor the ILS approach in keeping with those changes?

Mr. BLATT. Yes, sir; we can do a job of monitoring. I indicated that on the 65° radial, we were actually going to advise him when he could dump, so that he could leave the 2,000-foot level.

We can actually monitor all approaches coming down to us—coming up on 4 or down on 22. We have that ability. Similarly, at La Guardia, we can monitor the 4 approach on La Guardia Airport.

Mr. HEMPHILL. But you can't monitor 22 or La Guardia, can you?

Mr. BLATT. We will be able to monitor 22 very soon. I am pleased to advise you that I am installing a bidirectional radar at La Guardia.

Mr. HEMPHILL. After the pilot gets to his outer marker, and starts his glide approach, is he on radarscope from that time until he either breaks out or——

Mr. BLATT. He is actually on the scope until touchdown.

Mr. HEMPHILL. You can monitor not only his glide path, insofar as the horizontal direction is concerned, but can you monitor the altitude?

Mr. BLATT. Yes, sir; as long as he is on the runways I have indicated, we could, yes, sir.

Mr. HEMPHILL. If he went to some ridiculous 150 feet 10 miles out you would pick him up on that?

Mr. BLATT. We would get him—just about at 10 miles he would start appearing on our scope.

Mr. HEMPHILL. If he was 150 feet up, 10 miles out——

Mr. BLATT. He could not have intersected the glidepath, because he would have a very hard fly-up signal under that condition.

Mr. HEMPHILL. It would be difficult under ILS conditions——

Mr. BLATT. Whether it be—we would monitor this irrespective of the meteorological condition itself, as long as he was coming in on that.

Mr. HEMPHILL. Are you monitoring that today?

Mr. BLATT. Yes, sir; we are.

Mr. HEMPHILL. I mean approaches which are necessarily over the congested area about which the witnesses are apparently complaining. Is FAA monitoring that today to make sure there are no violations?

Mr. BLATT. Yes, sir.

Mr. HEMPHILL. If there were violations, wouldn't it appear on the radarscope within the 10-mile limitation?

Mr. BLATT. Yes, sir. That is just on the runways I have indicated.

Mr. HEMPHILL. Runway 22 is one of the runways that have had some of the complaints, isn't it? And runway 25?

Mr. BLATT. Yes. But those complaints, I feel, are due to the change in power settings. You have an aircraft coming down on a glideslope. He is all set. And then he has to make this **S** turn. And each time he goes into the turn he is going to increase power, and you will get this rising acceleration, a rising sound, that is most annoying, most disturbing.

Now, by eliminating the **S** turn, I think we have, in effect, eliminated part of our 22 and 25 approach problem.

Mr. HEMPHILL. Thank you very much.

Mr. BOSCH. Mr. Blatt, just one question. Assuming that you discovered a pilot who was violating the rules and regulations, what would be the penalty?

Mr. BLATT. The penalty would vary from a civil penalty, or fine, to revocation of his certificate, depending on the sanction that has been determined for the particular offense. I mean I can't tell you without all of the circumstances. But it could vary from complete revocation of his certificate, his right to earn a livelihood as a pilot—that would be the most severe. It could go from that to a civil penalty.

Mr. BOSCH. In other words, today, all of the penalties are civil?

Mr. BLATT. Yes, sir. The law does not permit any other action.

Mr. BOSCH. That brings me to my question now. What do you think of prescribing criminal responsibility?

Mr. BLATT. Congressman, I feel that the threat of revocation of certificate is a very, very serious sanction. And I know of no one in the aviation industry that does not approach such a threat with a great deal of trepidation. I mean the club, shall I say, that you have given us, the weapon that you have given us, is mighty potent.

Mr. BOSCH. That is all.

The CHAIRMAN. Mr. Blatt, let me join the others in complimenting you on your presentation here this afternoon. Apparently you have made, along with others, a lot of progress, but there is a lot of progress yet to be made.

The time is getting late. And we have one schedule we want to make before we get over, so I will not bother you with any further questions, except to thank you on behalf of the committee for your presentation.

Mr. BLATT. Thank you for the opportunity, sir.

The CHAIRMAN. Mr. Clancy?

STATEMENT OF JOHN T. CLANCY, BOROUGH PRESIDENT OF QUEENS

Mr. CLANCY. Thank you, Chairman Harris, and gentlemen. I am very happy you were able to come to Queens. I was a little detained this morning at a Labor Day parade in New York where they paid tribute to everybody but Congress.

Of course the noise situation has been around Queens for many years. I disagree with my friend from the chamber of commerce of the area when he states that the development around the airports in Queens only occurred after the airports were here. Now, there are 1,935,000 people in our borough, and most of them, or 80 percent of them, were here before the airports came into being. And it is a sad commentary on our friends when they testify before this committee today and state that, imply at least, that the development around the airports were based on the fact that the land was cheaper or some other such statement.

We were fortunate enough to have a conference with all the airlines 3 weeks ago. They sent various representatives. Mr. Blatt was present, as were members of the port authority. And it was out of that meeting we arrived at the conclusion that only some of them were cooperating to a 95-percent degree. I may not have the names correctly. I think it was American and TWA cooperating about 55 percent. I may say now to the Congressman from Baltimore, if you want the ones not cooperating, we will gladly give them to him, and keep the ones that are cooperating.

However, I think the degree of cooperation is necessary. I have heard the admiral testify here this afternoon that he didn't think it was too necessary. And in listening to the admiral and his reports, there were certain quotes I had made.

Prior to that time, however, following our conference at borough hall, when Capt. Harold Gray, of Pan American, stated that Pan American was spending considerable money, and he had in formation a technical committee which I think came into being following our conference, and I think that was the beginning of some help.

I, at borough hall, not being technical, look at this as a commonsense situation. The complaints have been aggravated. I think the

jets were the straw that broke the camel's back. The complaints have been around here for years.

I think self-confession on the part of the airport is implicit in the construction of this building, which they made airproof and noise-proof to get away from the noise of the planes at the airport itself.

Following our conference at borough hall, I then communicated with my colleagues in Washington, tried to have them stop up. We went down there on or about the 26th, I think it was. We saw Congressman Sy Halpern, Lester Holtzman, Jim Delaney, Frank Becker from Nassau, and the Congressman that we split two ways, Manny Celler, split only geographically, of course.

Following that conference, he sent a letter to General Quesada, in which he was to have stated the reason for our coming to Washington, and that was based mainly on the fact that at the hearing in Borough Hall I asked Mr. Blatt what his definition of safety was and safety, of course, being implemented in the Federal statutes and the rules and regulations, and he said that he thought it was life and health. And then we said that if it was health, then noise is a terrible disease, and it affects the health and consequently it shouldn't be there. We described that to our friends at Washington. They sent a letter to General Quesada in which they asked about certain questions as to whether or not he had sufficient authority with respect to noise. I sent a second letter—I sent a direct letter to General Quesada, setting it forth in plain language, and we haven't had any reply, although I understand that Congressman Bosch received a letter from the general on or about the 24th, which he read into the record this morning, and which he replied to giving the information.

Mr. BOSCH. That was prior to your meeting.

Mr. CLANCY. Did that letter say they did have jurisdiction over noise?

Mr. BOSCH. He said he had jurisdiction, but he wasn't going to use it at this time.

Mr. CLANCY. I see. Of course he is new. He was only confirmed about 8 months ago, and he is a new Agency. If he isn't going to use it, then I say that he is adopting the same tactics which I stated at borough hall. And if he is not going to use it, and he has it there, and doesn't want to use it, then we in Queens will just act accordingly. Because if he doesn't want to show cooperation, we in Queens won't show cooperation. Who is kidding who around this town?

We have a lot of commonsense in this town, Congressmen. We know progress has to come. When the horse went out the window the autos came in, and the autos were noisy, and created a situation where they became silent, even to the extent of a Stanley Steamer or an old Franklin. As the airplanes come in that is progress, too. We want to get people in and out of our borough. A lot of them we would like to get out and not let in again. But the situation is such that we go along with progress.

I realize there is $182 million here; 70 percent of it stays Queens. And over at La Guardia they are doing quite a job at this time.

I disagree with Rosendahl that the port authority shouldn't have some say in this situation about cooperation with this airport. And I think if Mr. Blatt and the general has jurisdiction over noise, I think he should do something about it.

And when my friend, the head of the chamber of commerce of the air states on page 17 that—

> we submit are negative approaches to the problem which if adopted at any time in the history of civil aviation's development, would surely have made our country a second- or third-rate participant in world aviation. If, in the future, we adopted any or all of these negative actions—

and I say nobody in Queens wants negative actions, we want affirmative actions—

> it would also be a step toward permitting the free world's principal civil aviation competitor—the Soviets' Aeroflot airline—to gain the civil air supremacy the Soviets so ardently seek.

If the Soviets want to have the top airline, and a lot of zombies over in Russia, they can have them. If they have to be the top airline in America, and have a lot of zombies in Queens, we are not going to let it, because I would rather be a good citizen, and the devil with the airlines and progress.

He says:

> We believe that the best approach to the problem is that which is currently being taken on a voluntary basis by the entire civil air industry—

and you know, folks, these lads here this morning, the people who live in Queens, have been agitating for this thing, so that when he says it is voluntary, I will give him the benefit of the choice of his words. We are for neutralization of this air situation around the clock. We don't want to adopt any drastic methods. We realize aviation is here to stay. But certainly the airlines spending the great moneys they do no public relations and advertising and everything else, should get into the situation and resolve something. You know, they don't resolve it just for the purpose of Queens. They resolve it all over the world, because as one of my friends quoted a story in the Times of Sunday, in the sports page, that was sort of funny to me, that is where it belonged, but it would have been better if the story were next to the obituary column.

On page 16 my friend of the Air Chamber of Commerce says:

> We emphasize that it is the firm policy of the industry to give first consideration to flight safety, second consideration to noise abatement, and then the economic requirements of operation. We are not, therefore, by any stretch of anyone's imagination, putting dollars before human welfare.

When you asked Mr. Blatt a question before, one of you gentlemen, at what point does the airplane intercept, I thought you were going to say intercept the pedestrian, because if you drove along Grand Central Parkway, those planes come in there at 100 or 150 feet above the top of the car. Now, whether that is coming in that new beam path which crosses Grand Central Parkway or not, I don't know. But I feel that the aviation industry can do something about it.

If the FAA has the control and jurisdiction, no studies are necessary, we have to bring it into force. And when Congressman Bosch asked Mr. Blatt about criminal sanctions and Mr. Blatt said something about taking up a certificate in the event that the pilot does not do the job correctly, I don't think you should take up the pilot's certificate. I think you should take up the certificate of the airline that permits the pilot to do what he is doing, because pilots can come along, but airlines aren't here unless we permit them to be here.

I am very happy that you gentlemen came here. I think something has come out of this. And I think it is a consciousness that you may have and which will guide you. I don't know whether or not you have been in the other parts of the Nation with similar hearings on this, but I think we here are most prevalent as far as the noise situation is concerned. And I trust that we in Queens can be somewhat of a help to you at arriving at some conclusion which will help our people and the people around the Nation.

It has been a long hearing. I realize I had to be called on short notice. I am glad I wasn't called on long notice, because I wouldn't have been able to get into the building, believe me. We have some very vocal friends around this town. And I am big enough to stand it. You fellows can leave town tonight, and I will still take it.

But there has been in the aviation industry so much money spent for the advancement, scientific and otherwise—I cannot understand why crosswind approaches and other gear is not sufficient to bring these planes in over the water.

Incidentally, I thank you very much for asking that the license numbers be put on the bottoms of the planes, because Jack Chassen tells me there is a fellow buzzing borough hall for about 2 weeks since our last meeting.

There was only one jet went off here today, and you could even hear it through the soundproof windows, and though the blinds are drawn, ostensibly for the sun, although the sun has long departed.

Thanks again for coming to our borough. You are most welcome. We are happy to have Congressman Bosch from our Borough, and Steve Derounian, and the rest of you gentlemen, and you from Baltimore will have to do without the planes because we will keep them. We will solve the problem one way or another.

Thank you.

The CHAIRMAN. Mr. Clancy, thank you very much for your appearance. I think the record should show that you are Mr. John T. Clancy, Borough Hall, Kew Gardens, borough president of Queens.

Thank you very much. We appreciate your being with us this afternoon.

Mr. DEROUNIAN. Mr. Chairman, I ask unanimous consent to place in the record the statement of our colleague, Mrs. Dwyer, of the Sixth District of New Jersey along with a few letters from constituents in this area.

The CHAIRMAN. Without objection, they will be included in the record.

(The material referred to follows:)

STATEMENT OF HON. FLORENCE P. DWYER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY

Mr. Chairman and members of the subcommittee, I appreciate the opportunity of presenting this statement for your consideration. The problems related to the operation of commercial jet aircraft from the three major airports in the metropolitan New York area—that is, Idlewild, La Guardia, and Newark Airports—are of intense and increasing concern to the people who live in the areas surrounding these airports.

As the Representative of the Sixth Congressional District of New Jersey, a portion of which lies adjacent to the Newark Airport, I am concerned for the health and safety and comfort of a great many of my constituents, all of which are jeopardized by the frequent use by jet aircraft of Newark Airport.

I hope that the subcommittee, in considering these problems, will give equal attention to all three airports. The problems are the same in each; all three airports serve the same area; all three are operated by the same port of New York Authority; and, as the subcommittee is aware, Newark Airport has been utilized, more and more often, as a supplemental airport for traffic originally scheduled for Idlewild and La Guardia when these airports were unable to handle them adequately.

Before any of the substantive problems can be solved, it seems to me, there is a fundamental need to fix responsibility among the several agencies involved with commercial aviation in this area to determine the specific jurisdiction and the extent of authority which each is assigned. I refer, of course, to the Federal Aviation Agency, the Civil Aeronautics Board, the Port of New York Authority, and the voluntary National Air Transport Coordinating Committee. In my own experience and in that of other Members of Congress, there has been in recent years a great deal of ambiguity and confusion and avoidance of responsibility whenever efforts are made to control the operation of aircraft in the area in the interests of the general public.

Specifically, I believe that Congress must determine what agencies have effective authority to impose necessary conditions upon the operation of aircraft, both in the air and on the ground, in order to restrict noise and otherwise provide for the safety and health and reasonable comfort of those who reside in the vicinity of the airports. If sufficient authority has not been granted to date, then I believe further that Congress should undertake the responsibility of assigning it—in clear and specific terms.

For these reasons, I have supported House Resolution 162, introduced by our colleague, Mr. Bosch, of New York, which would establish a select committee to study these problems. However, in the event this subcommittee, with its extensive background of experience in the field, would be willing to undertake such a study, then I should be among the first to encourage you to do so.

Certainly, the seriousness of the noise problem justifies your attention. As part of its noise reduction procedure for jet aircraft, the Port of New York Authority set a maximum level of 112 perceived noise decibels. While this level is extremely liberal when compared with the 60-decibel level which medical and acoustical authorities have recommended for the hours from 11 p.m. to 7 a.m., even this high level has been ferquently exceeded by aircraft operating out of New York area airports.

Levels, for instance, of 125 and 129 decibels have been verified by the Port of New York Authority as having been reached by jet aircraft operating in the area within the past 2 months. In understanding these figures, please remember that 140 decibels represents the very top of the sound scale, that physical pain will be experienced at sound levels above 130 decibels, and that a level of 108 decibels (substantially below the maximum set by the Port of New York Authority) is the equivalent of the noise produced by 30 Niagara Falls roaring simultaneously.

It is obvious that exposure to constant noise disturbances of these magnitudes will seriously affect the health and comfort of people living in the area over which jet aircraft must operate flying in and flying out of New York airports.

A section of Elizabeth, N.J., called Elizabethport, is situated within 1 mile of the most heavily utilized runway at Newark Airport. This is the runway, you will recall, which was specially built following three successive crashes of aircraft operating out of the Newark Airport in a very small section of Elizabeth. Planes which land or take off from this runway in a southerly direction fly over the Elizabethport section at levels below 400 feet—considerably lower than even the most liberal minimum altitude.

Despite the past assurances of Port of New York Authority officials, these aircraft increasingly are jet aircraft, since jets have recently been permitted to use Newark Airport as an alternative to Idlewild and La Guardia. On recent evenings, as many as five huge jet transports have thundered over this residential section of Elizabeth at incredibly low altitudes. The effect on the population has been upsetting and disturbing in the extreme. One of my constituents, for example, has been forced to replace no less than nine ceilings during the past few years as a result of the physical shock of the sound of constant low-flying aircraft. The cost of this situation in terms of lost sleep, impaired health, and shaken nerves, is of course, incalculable.

Yet the justified complaints of our people go unheard and increasingly, in fact, unacknowledged. If the public agencies involved, or the airlines themselves, displayed any determined effort to correct this menace or to develop noise controls of one kind or another, then there might be cause for hope. But as far as we can determine there is little or no serious effort being made to live up to the obligations toward the general public inherent in the public franchise enjoyed by airlines and in the responsibilities of public regulatory agencies.

As a last resort, we are seeking the assistance of the Congress: first, to define the areas of authority and responsibility and then to see to it that the rights of the people to protection of their health and safety be respected.

Thank you very much for your cooperation.

THE PORT OF NEW YORK AUTHORITY,
New York, N.Y., July 10, 1959.

Mr. DANIEL METTA,
Richmond Hill, N.Y.

DEAR Mr. METTA: I am writing in response to your telephone call to my office concerning American Airlines flight No. 7, which took off on runway 31L at 7:08 p.m., Tuesday, July 7. The flight produced a noise level of 128 perceived noise decibels, which is considerably above the noise level ceiling established by our jet noise reduction procedures.

I understand that you have contacted American Airlines and the National Air Transport Coordinating Committee about this flight, but I am nevertheless reminding them of your complaint by copy of this letter and requesting that they provide us with a copy of their replies to you.

Sincerely,

JOHN R. WILEY.

[Handwritten note:] This flight took place only 7 days after the highly publicized "improved program to benefit Idlewild Airport neighborhoods against noise annoyance" started on July 1, 1959. Endorsed by Federal Aviation Agency and Air Line Pilots Association.

BROOKFIELD CIVIC ASSOCIATION,
Jamaica, N.Y., September 7, 1959.

Interstate and Foreign Commerce Committee.
(Attention of Congressman Albert H. Bosch.)

GENTLEMEN: The Brookfield Civic Association has registered complaints with the port authority, the CAA, CAB, and other departments regarding the low-flying airplanes and noise nuisance over our area by airplanes using Idlewild Airport.

While we have always been assured of their fullest cooperation and sympathetic understanding, the nuisance persists. It has been explained to us by each of these agencies that they do not have the power to enforce regulations of landings and takeoffs at Idlewild.

We believe that the management of Idlewild Airport, if given the authority to regulate traffic in this vicinity, will accept its responsibility and will continue in its efforts to be a good neighbor.

Therefore, we urge that House Resolution 162 be approved and recommended to Congress as soon as possible.

Respectfully,

LEONARD T. WITT, *President.*

SPRINGFIELD GARDENS,
Queens, New York City, N.Y., September 7, 1959.

The need for noise control has become necessary with the introduction of jet-propelled aircraft.

If you or I were to go about the city with a defective or no muffler on our automobile, it would not be long before we would receive a ticket from the police department for unnecessary noise.

Not too long ago we in New York City had an antinoise campaign where unnecessary automobile horn blowing brought forth a ticket from the police department.

Have any of you heard of a jetplane receiving a ticket, yet the noise is many times worse?

It is not enough to invent a new product if in the exericse of its performance it violates a man's right to peace and quiet.

Until such time that effective mufflers are designed, and jetplanes are equipped, I believe the best interest of the community will be served with a target date set for the grounding of all nonequipped (muffler) planes.

WILLIAM FRIEL.

SPRINGFIELD GARDENS TAXPAYERS ASSOCIATION, INC.,
Springfield Gardens, N.Y.

Hon. OREN HARRIS,
Chairman, House Committee on Interstate and Foreign Commerce:

At the moment your committee has before it proposed legislation, House Resolution 162 introduced by Congressman Albert H. Bosch, Fifth District, New York.

We are taking the liberty of asking your committee to bring this bill out of committee for action by the Congress.

Since the inauguration of jet transportation, in October 1958 until to date, the noise nuisance created by these planes has been the worst since the opening of New York International Airport at Idlewild, N.Y., 12 years ago.

We are also annoyed, day and night, by low-flying planes and their accompanying noise.

Since April of this year, the above organization has been trying to get information from Mr. Joseph D. Blatt, regional director, Federal Aviation Agency; Mr. John R. Wiley, director of aviation, Port of New York Authority; Vice Adm. C. E. Rosendahl, Chairman, National Air Transport Coordinating Committee, asking why airborne planes flying over this community must be low. To date we have received no answer from these gentlemen. We have been told many times that if we can read the numbers under the wings of the planes they are too low. We can read the numbers if they are painted under the wings. Lately they have painted the numbers on top of the wings so that we cannot read them—wise guys.

Recently, in a court case involving noise by steam piledrivers until 11 p.m., on the Throggs Neck Bridge project, the Honorable Judge John Scileppi, justice of the Supreme Court, State of New York, ruled in favor of the people. He stated, and we quote:

"I'm satisfied that it has been shown that the piledriving discomforted the residents. Progress does not mean the building of highways and bridges alone. The people are entitled to enjoy their homes without disturbance from unnecessary noise."

The same thought as expressed by the learned judge applies in this matter of airport and plane noise. The welfare of the people residing in Queens, Manhattan, Bronx, Nassau Counties, and those of Bergen County of New Jersey are of paramount concern.

To keep these two bills, or any other bills that would lessen these nuisances, pigeonholed is an injustice to almost 2½ million people residing in the above-mentioned areas, who must listen to this din 24 hours per day.

Our people, the young and the aged, the sick and the well, are constantly disturbed by the incessant noises created by these airports and planes.

In our local papers there is a report that the Board of Education of New York City is asking the board of estimate for an appropriation to ocnduct a study by some firm, supposedly a noise expert, to find some method to noise condition a new proposed junior high school that will be built at Springfield Boulevard and South Conduit Boulevard, Springfield Gardens, N.Y. This school will be a stone's throw from a runway at Idlewild. So you see the board of education is very much concerned about noise from the airport. The Port of New York Authority built a hotel on airport property at Idlewild, and they made sure the hotel was soundproofed.

The residents surrounding the airport cannot soundproof their homes, hence the need for legislation to stop this unnecessary noise, especially at night.

In England they prohibit night takeoffs by jetplanes; why not in the United States?

As our elected public officials, it is your duty to protect our health and welfare and to insure safety to our lives and property.

Trusting that your committee will heed our request to bring out, as soon as possible, the two bills mentioned above; thanking you, we remain,

Very truly yours,

ALBERT L. MONTBELLIER, *President.*

Noise Hearing at Idlewild Airport:

SEPTEMBER 7, 1959.

I am one of four elected trustees who preside with the mayor as the governing body of the incorporated village of Floral Park. My residence is at 82 Daisy Avenue, which happens to be located about 150 feet from what is known as the outer marker for the instrument landing runway 22 at Idlewild Airport. At this location I am in a good position to observe the planes passing over the marker. The marker is approximately 5.5 miles from the beginning of the runway, and I understand it gives altitude and position information to the pilot. I am very much concerned about the health and welfare of the people in Floral Park. Mayor Carpenter has told you of the reaction of the residents to the jet age. Now I want to bring you some measured facts and conclusions that explain the reactions of the people of this area.

I made many measurements of sound level on weekends during July and August. I feel qualified to make such observations as I am a professional engineer and happen to be employed by the Bell Telephone Laboratories where I am privileged to borrow the necessary equipment at times when it is not being used in scientific experiments.

Before noting my observations and comments I would like to bring to the attention of the honorable committee an article that appeared in a magazine called the Military Engineer, issue of November-December 1956, under the title of "Effect of Jet Aircraft on Airbase Planning." The author is Col. Merrill E. DeLonge, of the U.S. Air Force, who at that time was (and may still be) the Director of Real Property, Assistant Chief of Staff, Installation, Headquarters, Air Defense Command, and was formerly Deputy Chief, Air Base Planning. This article reviews the major factors to be considered in locating an airport, laying out the runways and safeguarding the welfare of personnel. Several quotations from the article are as follows:

"Far more attention must now be devoted to anlyzing the impact of aircraft on urban developments in the region surrounding an installation."

"Today, Air Force criteria indicate that an installation should not be less than 15 miles from municipalities."

At the end of World War II "it was not uncommon to find pilots bringing their planes down on one-runway strips in crosswinds of 20 to 30 miles per hour. From this it was learned that the long-established four-runway system was not essential.

"The Air Force has determined that a sound level of about 85 decibels is tolerable for personnel—and is making an effort to limit the sound in office and housing areas to this level—"

These quotations show that there was knowledge in aviation circles, as long ago as 1956, which would indicate that jetplanes could not be tolerated in a metropolitan area such as we have here.

We have been informed in letters from the National Air Transport Coordinating Committee that runway 22 is used for landings only under instrument conditions and then only when the wind is from the southwest or south. Furthermore, I had a telephone discussion with Mr. J. F. Ramsberger, of the NATCC, of their news release of June 26, 1959. The release described runway uses but did not list 22 for landings. Mr. Ramsberger explained that 22 was not listed for regular landings as it was used only for instrument landings. Contrary to this, the observation of flights, hour after hour, for several days at a time in relatively calm and for the most part clear weather leads me to the conclusion that certain approaches and runways are used as a matter of convenience. As an example, on August 11, which was a clear day with a westerly wind, I observed that the instrument beam over Floral Park, which leads southerly to runway 22, was being used by planes at intervals of about 2 minutes. I called FAA at Idlewild for an explanation and learned that the instrument approach was being followed until the planes reached the vinicity of Idlewild, whereupon they swerved and

landed on another runway. Thus, the instrument approach was being used despite statements to the contrary.

And now the noise levels in Floral Park were measured on the flat weighting adjustment of a standard General Radio sound level meter type 1551–A which conforms to all of the requirements set forth in the ASA American standard for sound level meters. Measurement is in decibels above a standard sound pressure reference level of 0.0002 microbar (a pressure of 0.0002 dyne per square centimeter) at 1,000 cycles.

The measurements show sound levels from 86 to 96 decibels, the measurements being essentially the same whether measured outdoors or indoors on a window sill. Sound from 4-motored planes sometimes reach 90 decibels, but the noise from jets is mostly between 90 and 96. I submit that these sound levels are beyond the standard of toleration quoted above.

The conclusion is that jetplanes should not be permitted in the Idlewild Airport and greater care should be exercised in the handling of other craft in the vicinity. Furthermore, the completion of the new runway and associated instrumentation parallel to the present runway 22 will undoubtedly render our situation more unbearable.

Respectfully submitted.

TOLA A. MARSHALL,
Trustee of the Incorporated
Village of Floral Park, N.Y.

The CHAIRMAN. Mr. J. E. Smith, representing the Airline Pilots Association.

I might say we are going to hear one other witness after this, and that will be Mr. Pyle, of the Federal Aviation Agency. It is getting late. We have one other part of the program that we have got to meet, and we have a certain schedule to do it on, so we will not be able to continue.

STATEMENT OF J. E. SMITH, REGIONAL SAFETY CHAIRMAN, AIRLINE PILOTS ASSOCIATION

Mr. SMITH. Mr. Chairman, and members of the committee, my name is J. E. Smith. I am the regional safety chairman of the Airline Pilots Association. I am an active airline pilot for Capital Airlines. I have been the designated ALPA representative to NATCC for over 6 years, almost since its inception.

Frankly, I believe that Admiral Rosendahl and Mr. Blatt have covered many of the areas related to this problem. And because of a couple of other points that were raised during the testimony, it becomes necessary to possibly try and clear up the record a little bit.

There seems to be a tendency to infer that airline pilots are not too well impressed with the severity of aircraft noise problems, particularly in the New York area. We have been participating in this program since as far back as 1947. We are not a Johnny-come-lately to the effort. We view it with considerable alarm, particularly since it is one over which we have not too much control. We find ourselves oftentimes in a very unfortunate position to have to operate an airplane that is noisy by nature.

We must adhere to civil air regulations, inasmuch as we are solely responsible for the operation of that aircraft and the safety of the passengers. And also, that we are faced oftentimes by being subjected to criticism which, while good in intentions, results from people not being familiar with the problems facing us on arriving or departing from airports.

I believe that many of the points Mr. Blatt has raised will very definitely provide a considerable amount of relief to Idlewild, and particularly La Guardia.

From the record standpoint, these procedures that have come into being in recent days are not the result of a helter-skelter aproach to the problem. I know from personal experience that we started work on many of these as long ago as last fall. But it takes time to change procedures, particularly when you get into traffic flow procedures. And in order to insure that we don't wind up with an unsafe operation, it just requires a fairly good period of time before they come into being.

Now, oftentimes, as was demonstrated here today, there are many accusations relative to the so-called hedgehopping and roofhopping exercises on the part of airline pilots. I could look at these statements from many different angles. However, I believe the basic point is that obviously an airplane 150 to 160 feet wide, and having a similar length, at altitudes of 1,000 or 500 feet no doubt looks fairly large and creates illusions as to altitude.

There are certain phases during the landing and takeoff where obviously the airplanes are at a couple of hundred feet. This would be within half a mile of an airport. And it is perfectly normal operation from both a legal and a safety standpoint.

I know of no airline pilot that intentionally goes around roofskipping with the thought of providing his passengers with a thrill and maybe exercising his own ingenuity through the process of dodging television antennas.

I think a very simple way of explaining this particular point can best come from an answer we provided many years ago to a similar charge. It concerns a trip I had one day with a copilot and a flight engineer as part of my crew and under my command. And those 2, together with myself, have 14 children. And I am quite certain that people will appreciate we are as anxious to get home safely as anybody else is.

Unfortunately, Senator Albert is possibly misinformed on the reason for my not attending meetings that he had in Long Island. And just to clear up the point as to whether or not we appreciate the noise problem, I believe in all fairness that many of the civic leaders who are in the room or who have testified will clearly indicate that I do not hesitate to honor any invitation or request to appear before any group at any time, on any occasion. I have done this literally hundreds of times. And the simple reason that we were represented at one meeting in Senator Albert's office was the simple fact that I never received any other invitation from his office.

You raised the question, Mr. Chairman, which I believe is quite appropriate to the area of responsibility and jurisdiction, namely, who has responsibility for the operation of an aircraft.

By statute, the pilot is solely responsible for the operation of that aircraft during flight time. Flight time is defined in the regulations as being from block to block, which in effect means that when that aircraft leaves the gate, until it arrives at the gate of destination, the pilot is solely responsible for the safety of the aircraft and its passengers. In effect, this is what we get paid for.

The selection of runways at International Airport here I think was very aptly covered by Mr. Blatt. It narrows down to the fact

that we have restrictions because of the physical capability of the aircraft. Whether a pilot wanted to use runway 25 or not is dependent solely upon the weight of the aircraft. If the weight exceeds what 25 provides, we have no alternative but to use 31.

My normal practice in operating an aircraft is that if I need a runway other than the controllers assign, is to pass on a reason for needing it. And in all the times I have been flying around here since 1945, the only time I use another runway is because of weight. But obviously the controllers are not going to direct us to runways that are not serviceable.

As concerns regulations and procedures which we adhere to, there was a statement which indicated a lack of such regulations or procedures. And I can only state here that this obviously is the result of being completely unfamiliar with the operation of airline aircraft. I know of no other industry, or I know of no other group that is subjected to the thorough and enforcible regulations as our airline pilots. We carry bags around that have at least three, four, or five manuals, full of regulations, rules, and procedures. And I have never seen any occasion where FAA bends over in the other direction and doesn't enforce them.

One final point, from a regulation or jurisdiction standpoint, is that we are required, by statute, once again, to adhere to civil air regulations. Should there be any inconsistency with procedures, regulations, or techniques which are not accepted by the civil air regulations, we have no alternative but to adhere to the civil air regulations as the supreme directive under which we must operate our aircraft. This is a basic, fundamental requirement of interstate commerce. We cannot operate aircraft predicated on local ordinances, municipal activities, or a hodgepodge of unrealistic procedures which we cannot even adhere to.

Congress has been very definite in establishing who has the responsibility for telling us how to operate. And I can see no reason for any doubt existing in this area.

That is all I would have, Mr. Chairman, unless you have some questions that I can help you out on.

The CHAIRMAN. Mr. Smith, there was some comment today about pilots who like to come in in a tunnel. Now, I am not sure that I understand the full import of the term. Maybe you could explain further. At least maybe you can tell us something about the attitude of the pilots in that regard.

Mr. SMITH. Well, Mr. Chairman, actually that is a point I overlooked and was one of the main reasons I wanted to come forth.

As I recall this meeting of literally hundreds I have been to in recent years, the purpose in a get-together at the Garden City Hotel was to review proposed legislation at the Senate level within New York State. One of these proposals involved the requirement for raising the operating minimums that we use at the airports. This got into airports, if I remember correctly, relying on memory, wherein they had upward of 100,000 or a million people.

In the process of discussing this particular subject, and outlining why we are not concerned from a pilot's standpoint with the present minimums authorized by the Federal Aviation Agency. I went into great length to outline many of the factors connected with approaching an airport.

The final statement, prior to the adjournment of the meeting, concerning an element of interest in pointing out that we, as pilots, and from an industry standpoint, are most thoroughly interested in a complete, truly all-weather operation regardless of what the weather conditions are. Possibly there was a misunderstanding on the terminology. But I think, as somebody with well over 15,000 flying hours, obviously I can appreciate the difficulty of approaching a runway through a tunnel.

The CHAIRMAN. Any further questions of Mr. Smith?

Mr. WILLIAMS. Mr. Chairman, I would like to ask one question, which was posed to me by one of the members of the audience here. I think I can answer the question before I ask it, but I want to get the answer from Mr. Smith.

The question: Do you know of any cases where sanctions have been invoked against pilots, airline pilots, for violating FAA regulations in flight?

Mr. SMITH. Yes, sir. As I mentioned, Mr. Williams, FAA has no compunctions about enforcing their regulations.

Mr. WILLIAMS. Do you know of any case where a certificate has been lifted on that account?

Mr. SMITH. Because of violating the Civil Air regulations—yes, sir. And I might point out that I wholeheartedly subscribe to Mr. Blatt's feeling on this matter. There is nothing worse that can happen to me than take away my livelihood through the suspension or revocation of my certificate. I do not need a jail sentence to convince me of that.

The CHAIRMAN. Any further questions?

A SPECTATOR. Mr. Chairman, I have one question from Mr. Smith, if I may.

The CHAIRMAN. You can ask me the question, and, if I think it is appropriate, I will ask it.

A SPECTATOR. I would like to ask Mr. Smith who regulates flight operations on training flights.

The CHAIRMAN. What is your name?

A SPECTATOR. Voegelin. I come from Calverton, Long Island.

The CHAIRMAN. I think there has been some testimony on that already, about the removal of flight training operations from here to some other location.

Mr. SMITH. Yes, sir.

The CHAIRMAN. Do you have any further information on that?

Mr. SMITH. In answer to that particular question, I would assume what the gentleman is interested in is the manner in which the flights are conducted in the vicinity of the Taconic River Airport. And inasmuch as it is a function or the airline training operation, the entire operation of the aircraft, the training of the crews are under the direction of the airline involved and subject to the acceptance for such a program by the Federal Aviation Agency. We have no operation, no procedure, no technique that I know of, that is not first approved or coordinated through the FAA before it receives application for the handling of an aircraft.

The CHAIRMAN. Mr. Smith, thank you very much for your testimony. You have been before our committee before, and we are glad to have you with us again.

Mr. SMITH. Thank you very much.

The CHAIRMAN. We will hear from another gentleman before we reach Mr. Pyle.

STATEMENT OF LESLIE W. CARPENTER, MAYOR, INCORPORATED VILLAGE OF FLORAL PARK, NASSAU COUNTY

Mr. CARPENTER. I would just like to add to the protests. Thank you, Mr. Chairman.

I am Leslie W. Carpenter, the mayor of the incorporated village of Floral Park, in Nassau County. I will make this very short.

I am here representing the 18,000 residents of our village. We are approximately 5 miles from this airport, and we would be located in the upper right-hand corner of the picture.

To complain after the aircraft is nothing new to the residents of Floral Park. Our first protests were made early in August 1958, at which time a new navigation beacon guide was erected at Belmont Park racetrack, which is only 25 feet outside of our village limits. At that time, the National Air Transport Coordinating Committee advised us that the number of landings on runway 22 were only 2.8 percent of those conducted at this airport. At the present time, we have as many as 30 planes an hour flying over our homes which is a tremendous increase.

We are interested in the economics here at the field. We are also interested in the economic impact on the real estate values in our village, which is over $100 million, and also the hazards to the health and the welfare of those who are sick and afflicted, especially those with heart conditions and nervous disorders.

And now we have been advised that there will be another navigation beacon guide erected in our village.

We have written to the National Air Transport Coordinating Committee, but we did not receive a reply to that letter.

Our villages are very much upset. Something must be done, even if it is drastic, before the people of our village are nervous wrecks.

Gentlemen, on behalf of the people of Floral Park, we thank you for coming. It is a great service you are giving to our community. And I hope that some action comes out of this committee. Thank you.

The CHAIRMAN. Thank you, Mr. Mayor. Of course, you point up a problem similar to others pointed out by many witnesses here today. Obviously there is a real problem here or we would not have been up here. We have known that this matter is growing in its complexity. I think it is something that everybody has got to give their very best to, to alleviate as much as possible. There is no question about that. I don't think there is any question in anybody's mind as to whether or not there is a real serious problem involved.

The question is how can we finally resolve it, or how can it be resolved. That is the purpose of the investigation and the study that we are making.

Mr. CARPENTER. Thank you very much.

Mr. DALRYMPLE. Mr. Chairman, for the record, may I extend on behalf of Queens and Nassau Counties our gratitude, a vote of thanks, for your committee coming here, on Labor Day, hearing our complaint. We pray for a solution.

The CHAIRMAN. Thank you, Mr. Dalrymple.

Mr. STARFIELD. My name is Harry Starfield, 28 Benedict Avenue, Valley Stream. Would you be so kind as to ask the pilot who testified to account for the fact that during a period within 20 minutes, the same weather, we have planes flying at altitudes between, I should say, 500 feet and 1,500 feet, at a point 3 miles from touchdown.

The CHAIRMAN. We have been trying to discuss these questions all day, and we just cannot go on and on into the evening.

Mr. MINION. Mr. Chairman. My name is John A. Minion, Rosedale, N.Y. We feel that the answer to this problem is here in two persons. That is, the FAA and the Port Authority. They have the power and the means to stop all this low flying by asserting their power.

Now, we requested them time and time again. We are tired of all these meetings and so on, from which we have not so far gotten any results.

We have tried a cavalcade the last time in protest. It lasted for about a couple of hours. The next time, unless something is done, we will put a cavalcade out here that will last 24 hours, and we mean it. We are tired of all this. We want some relief. We are not going to wait for it.

The CHAIRMAN. Well, I am sure that the people of New York and Queens and everywhere else around here recognize the importance of this problem. And I know the people are good, law-abiding citizens. I am sure they are going to continue in the future as they have in the past in an effort to try to settle matters as they should be settled, and that is peacefully and in accordance with the laws of our States and our Nation.

Mr. MINION. We hope so.

The CHAIRMAN. Now, I see hands going up all over, and I tell you I simply cannot hold this committee here longer.

If anyone desires to submit a statement of their problem, we would be glad to have you do it for the record.

Mr. METTA. Mr. Chairman, my name is Daniel Metta, 86–74 107th Street, Richmond Hill.

This is a letter of a direct violation of the noise ceiling set up by the Port of New York Authority by American Airlines. This I reported to the NATCC with an express desire that it be called to the attention of Mr. Smith, who is on the NATCC and also president of American Airlines. To this point, I have not gotten any answer from American. The Port of New York Authority has written here:

> I am nevertheless reminding them of your complaint by copy of this letter and requesting that they provide us with a copy of their replies to you.

As of this point, there is no reply from that organization. And I think it is indicative of the attitude toward these complaints. Thank you.

Mr. HOLLINGSWORTH. Mr. Chairman, my name is Lee Hollingsworth, 110 Fox Boulevard, Massapequa.

I would like to ask a question for the record and let it stand.

Could the airlines direct their planes over Montauk and come down the water to the point where they could approach, and then they would not have to fly low some of the time over hundreds of thousands of homes.

Thank you, sir.

The CHAIRMAN. Thank you very much. Now we have Mr. James Pyle.

Mr. Pyle is the Deputy Administrator for the Federal Aviation Agency, and has been here with us all day, showing the interest of that agency in this problem.

STATEMENT OF JAMES C. PYLE, ASSISTANT ADMINISTRATOR, FEDERAL AVIATION AGENCY

Mr. PYLE. Mr. Chairman, the time is late, so I won't take anything more than about 90 seconds to try and give you just a word picture of what we are going to do.

In the first place, I want to thank the committee for coming up here and doing this job today.

I want to thank these people, and I am entirely sincere, these people who took their time to come out and tell us of their problems, because it has been highly educational to me.

We have the authority to step into this picture and do something. We did not have the authority under the old Civil Aeronautics Act. I think these people should realize that. It has been a handicap to this problem. It has been a handicap to Mr. Blatt and his people up here.

Congress, under your guidance, Senator Monroney, and some assists from the executive branch, came out with the Federal Aviation Act and gave us a new tool to do something.

Now, Mr. Blatt's testimony is eloquent evidence that something is being done and will be done.

I think that these people must realize we are very sympathetic to their problem. We are going to do something. I would ask, however, that they be patient to the extent that they realize this cannot be done overnight. There are complex procedures involved, complex aircraft we are dealing with. And they must realize that our heart is in the right direction. We are going to do something. But they cannot expect it tomorrow night—that we are going to have it cured. I would urge that they not act precipitously without at least consulting with the various people involved.

I do feel that the Federal Aviation Agency has the responsibility, the prime responsibility in this area, and I am going to see that it is exercised. I am going to see Mr. Blatt gets the support he needs up here, even if it means reprograming of funds for the relocation of facilities. This may be part of the problem.

We are going to do something, and I want these people to realize that.

I hope I am not being unfair in using this device to let them know just how sincerely we feel about their problem.

I would like to also point out that General Quesada is thoroughly in sympathy with this. He was sick today or he would have been here himself. But he could not make it and asked me to come up here.

It has been a privilege to be here.

The CHAIRMAN. Mr. Pyle, thank you very much. We appreciate you escorting us here today and joining with us in the hearings.

Now, I want the people of this area to thoroughly understand this. You are entitled to a day such as we have had for a hearing here

today. I think it is wholesome and will be highly beneficial to have had such a meeting as this, where you could publicly state your complaints to, not only this committee, but those who have authority to do something about this problem.

I think it is also helpful to hear from those who operate in your local area, those who are administering the laws affecting the problem, to indicate what they have been trying to do and what they hope to do.

It is certainly the hope of this committee, not only the Members of Congress from this area, and those who are with us today, who represent you very ably in the Congress of the United States, but all of us, that something can be done regarding this problem.

We are going to have further hearings on this. We are going to listen to the actual soundings that have been taken by the Federal Aviation Agency and the industry itself. We are going to go out and discuss it with the industry people, the aircraft people themselves.

So I think you can be assured that whatever efforts that we can make toward the abating of this terrific problem, that we are going to do what we can for it, in cooperation with you and with all those who have anything to do with it.

I want to thank Mr. Wiley and his associates for the courtesies that have been extended to this committee today for making the arrangements for this hearing at your airport.

I regret we could not go to all of the airports and have hearings there, but it would have been utterly impossible.

Your very fine attention to us in making these arrangements has, I am sure, added to at least a start toward doing something actively toward this problem, and we appreciate, Mr. Wiley, your efforts.

I want to thank you people of this entire area for the courtesies that you have shown to us. I know that all the members of the committee join me in expressing the hope that all of us together, as Mr. Pyle has just said now, digging into this problem, should at least bring about a better understanding and actually a better program, that will permit the people who have been troubled with this problem over a long period of time to enjoy themselves in their homes with greater peace and quiet. That is our hope.

Again, I want you to know that we have enjoyed this privilege of being with you.

(The following material was received from the FAA:)

SCHEDULED AIR CARRIER AIRCRAFT OPERATIONS, OCTOBER 1959

Domestic airline companies operating at Idlewild Airport

Company	Jet	Type operation		Company	Jet	Type operation	
		Prop jet	Conventional			Prop jet	Conventional
American Airlines	360	60	538	Pan American Airways	.....	.....	18
Braniff	.....	60	60	Panagra	.....	.....	124
Delta	120	.....	120	Riddle Airways	.....	.....	170
Eastern Air Lines	.....	1,116	1,984	Seaboard Western	.....	.....	22
Flying Tiger	.....	.....	2	Transocean Air Lines	.....	.....	16
National Airlines	.....	720	1,320	Trans World Airlines	420	.....	420
New York Airways	.....	.....	1,488	United Air Lines	70	.....	1,000
Northeast Airlines	.....	.....	651				
Northwest Airlines	.....	124	682	Total	970	2,080	8,697
Overseas National	.....	.....	82				

Foreign airline companies operating at Idlewild Airport

Company	Jet	Type operation		Company	Jet	Type operation	
		Prop jet	Conventional			Prop jet	Conventional
Argentine Airlines	16		8	Lufthansa			114
Aeronaves de Mexico		60		Qantas	32		
Air France			199	Sabena			132
Alitalia			120	SAS			144
Avianca			62	Swissair			620
BOAC	120	60	240	Trans-Canada		630	
Cubana		64		Transcontinental SA			54
Eagle		79		Varig	2		36
El Al Israel Airlines		15		Trans World			324
Iberia			34	Seaboard Western			104
Icelandic			51	Pan American Airways	190		700
Irish Airlines			40				
KLM			366	Total	360	908	3,409
LAV			61				

Mr. DEROUNIAN. Mr. Chairman, before you close, I certainly would be remiss if I did not thank you and the committee on behalf of myself and Mr. Bosch. Ten Congressmen came to Queens to listen to the problems of our people. You have fulfilled your promise to me and Mr. Bosch that you would try to get up here before the Congress adjourned. And we certainly appreciate it.

Thank you.

The CHAIRMAN. Thank you, sir.

At this time, the hearing is adjourned.

(The following material was subsequently received for the record:)

[TELEGRAM]

LAWRENCE, N.Y., *September 7, 1959.*

The CHAIRMAN, HOUSE SUBCOMMITTEE ON AIRCRAFT NOISE,
Idlewild Airport, N.Y.:

The Lawrence Association residents of this village strongly urge you recommend measures curbing existing unbearable aircraft noise at airport.

ARTHUR S. JARCHO, *President.*

[TELEGRAM]

ROCKAWAY BEACH, N.Y., *September 7 1959.*

Congressman HARRIS,
Harris Congressional Committee,
New York International Airport, Idlewild, N.Y.:

You are invited to our home, 131 Beach 91 Street, Rockaway Beach, to appreciate impossible living conditions due to low-flying jets and need to have this alleviated.

HAZEL KOLL.
EDMUND KOLL.

NEW HYDE PARK, N.Y., *September 9, 1959.*

The Transportation and Aeronautics, Health, and Safety Subcommittees of House Committee on Interstate and Foreign Commerce, Care of Representative Oren Harris, House of Representatives, Chairman, Transportation and Aeronautics, Washington, D.C.:

Fourth amendment to Constitution guarantees privacy and integrity of the home. Noisy jets have flagrantly violated this privacy. At what price speed? Must majority suffer to get a few some place faster Restore peace and safety to American communities. Reroute those jets.

HY NEDDLEMAN,
President, North Lakeville Civic Association of New Hyde Park.

BROOKFIELD CIVIC ASSOCIATION,
Jamaica, N.Y., September 12, 1959.

Hon. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

DEAR SIR: I was in attendance at the committee hearing held at Idlewild Airport September 7, 1959. I would like to commend the Chair for the efficient manner in which the hearing was conducted, but regret that I was not permitted an opportunity to speak on behalf of the community which is closest to the airport, and which suffers most.

Therefore, I am enclosing herewith a statement representing the views of the Brookfield Civic Association.

It is our hope that your committee will solve the noise-abatement problem by endorsing H.R. 162 or suggest other remedial legislation.

Respectfully,

LEONARD T. WITT, *President.*

The Brookfield Civic Association represents the community bordering on the northeast section of Idlewild Airport. The approaches to runways 22 and 25 are directly over our community which lies between Springfield Boulevard and Brookville Boulevard, and south of the Belt Parkway to Rockaway Boulevard. All airplanes that use these runways fly over our community at a very low altitude.

We have in the past registered many complaints regarding excessive noise with the NATCC. The organization and individual members have filed these complaints. In each instance we were promised by the NATCC the complaint would be investigated and corrective action taken. Judging from the results we are compelled to assume that the complaints fell on deaf ears. The NATCC has done nothing to date to alleviate the noise problem, except issue press releases explaining how they intend to cope with the situation. This is understandable when one finds that the controlling members of the committee owe their allegiance to the airlines which they represent.

Our organization has registered complaints with the Port of New York Authority and had numerous conversations with their representatives regarding the noise problem. The Port of New York Authority is the only agency which has demonstrated a conscientious desire to bring the noise level to a tolerable level. Few fruitful results came from these talks, however, because certain airlines have refused to cooperate with the port authority in their noise-abatement programs. We have observed that one of the largest airlines in the country, American Airlines, is the principal offender. It is regrettable that the Port of New York Authority does not have the power to enforce its noise-abatement program.

The FAA has never recognized the noise problem in adjacent communities. They have shown by their answers to our complaints that they are interested only in air traffic.

Runway 22 was built directly in line with Public School 137. The Board of Education of New York has recognized the need for replacement of Public School 137, but the present site cannot be used because of the heavy air traffic. It is doubtful at this time that a suitable school site can be found anywhere in our community.

Runway 22 has been equipped for instrument landings and we are now advised that runway 25 will be similarly equipped. Our objection to having ILS landings over our homes were disregarded by the FAA. The only reason that the ILS landings were made over residential areas rather than over the water is that equipment installation was cheaper.

The FAA has established regulations for all phases of air traffic but has never taken intolerable noise level into account in promulgating these regulations.

We regret that the FAA and the NATCC have by their past performance shown that they represent the air industry and are not cognizant of the problems of local citizenry. We believe that any solution to the noise problem, in order to be effective, must be accomplished by remedial legislation. Such legislation should provide for criminal prosecution of violators. The city of New York has an ordinance which prohibits unnecessary noise on the ground and provides penalties for violations. Similar legislation should be passed by Congress against noise from air traffic.

We therefore urge that your committee recommend congressional approval of the resolution and bills sponsored by Congressman Albert E. Bosch.

ROSEDALE CIVIC ASSOCIATION, INC.,
Rosedale, Long Island, N.Y., September 10, 1959.

Re airport noise.

Congressman OREN HARRIS,
U.S. Government,
Washington, D.C.

DEAR CONGRESSMAN HARRIS: Our group attended the hearings you held in the Idlewild Airport control tower building on Labor Day. Although we did not "demonstrate" we must admit that the urge was there. Since you, our Congressmen, are our only defense against this grave infringement on our rights, we were, of course, elated at your willingness to help us.

We too, felt the urging to be heard. Especially since no testimony revealed that the irritation stems primarily from landings. This did not come out into the hearings for at least 3 hours. Mr. John Wiley stated that no takeoffs were permitted between the hours of 10 p.m. to 7 a.m., I believe he said. Nighttime takeoffs are terrifying and so are landings.

Although there were annoying demonstrations which constantly interrupted your regular procedure, we feel confident that the enthusiasm and remarks made at random were enough to convince you of the sincerity behind the complaint.

These procedures are not familiar to us, since all those present represented people from all followings and walks of life and few had the qualifications to properly plead their case.

We hope that by the grace of God, you could see through the noise and outbursts a sincere people who like yourselves, took time away from their holiday and family to plead for help from a committee who have it within their power to advance the eventual enactment of legislation, which will give us a peaceful existence and at the same time cause no harm to an industry essential to present-day economy and position in this competitive world.

Our group is grateful for the interest you have taken in our behalf and we pray that you have the good health and wisdom in making a just decision.

Very truly yours,

THEODORE P. SASSO, Sr.,
Airport Chairman.

WADING RIVER CIVIC ASSOCIATION,
Wading River, Long Island, N.Y., September 12, 1959.

Hon. OREN HARRIS,
House of Representatives, Washington, D.C.

SIR: With respect to the hearing held on September 7, 1959 at Idlewild Airport, concerning the House resolutions of Congressman Albert H. Bosch, we should like to have the attached correspondence with the CAB and the FAA made a part of your record and file.

Please note that if Mr. McKay's directive relative to the low-flying commercial airplanes had been strictly implemented, the acciden which occurred at Calverton would have been averted. We call your attention to this matter because the continuation of these practices in this area constitutes a growing hazard in which many people can lose their lives. Such a policy is a direct violation of the constitutional rights of every private citizen of the United States.

Protection now is the matter with which we are directly concerned.

Very truly yours,

BERT RHODES, *Secretary-Treasurer.*

WADING RIVER CIVIC ASSOCIATION,
Wading River, Long Island, N.Y., June 15, 1959.

THE CIVIL AERONAUTICS BOARD,
Idlewild, Jamaica, Long Island, N.Y.

DEAR SIRS: The Wading River Civic Association, on behalf of its members and of the institutions and groups, which endorse this letter, protest the wanton and unreasonable violation of the safety of this community and region by low-flying planes.

The use of the Grumman airfield with its long runways leased from the Navy by the Grumman Aircraft Corp., for the testing of commercial planes and the training of pilots constitutes, as presently practiced, an unwarranted vio-

lation of the private rights of citizens guaranteed under the Constitution of the United States, threatening the lives, the property of the people of this area, and the destruction of their health, comfort, and happiness.

We protest the general flight of these large commercial jets and other planes at elevations below 500 feet and frequently just skimming the treetops and chimneys of private homes over this entire area.

We protest the hours at which these flights take place, often starting around 4 a.m., and sometimes continuing through half the night. The consequent frequent interruptions of school classes, of divine worship, and even the carrying on of any conversation in the home due to violent noise and vibration is an outrage to society.

We protest against the increasing pollution of the lower atmosphere by jet planes barely overhead.

We believe every fnudamental right under our American Constitution is either directly violated or shamefully threatened by this type of commercial operation for private gain.

We call to your attention that this is the general condition under which this area suffers from such planes moving in many directions and that as these conditions vary not only with wind and weather, but with the exigencies existing under operational problems at the airfield, our populace can never hope in any manner to escape the disruption of normal community life.

Being unable to foresee a pattern which may be almost intolerable 1 week or nearly nonexistent for several days we are at a loss how to suggest you could check for yourself to see we have not exaggerated conditions in any way.

We believe we have reasonable personal rights to the air above our homes similar to those held over our land and the earth beneath our freeholds. If these rights are to be pirated by commercial freebooters the fundamentals of private enterprise upon which American society rests are being sabotaged.

We ask that reasonable and proper checks to keep such jet planes at least 1,000 feet above ground over this area should be enforced by your authority for the preservation of the constitutional rights and safety of society and the law and order which are being threatened under such present circumstances.

Respectfully yours,

Selden W. Heatley, President, Wading River Civic Association; Father John W. Davis, Director, Camp De Wolfe (for Youth), Episcopal Youth Center; Gladys H. Guy, Principal, Wading River School; William W. Dean, President, Wading River Historical Society; Rev. Reginald I. Avery, Minister, Wading River Congregational Church; Thomas S. Bonk, President, Wading River Fire Department; George Edward Beatty, Mayor, the Village of Shoreham, N.Y.; Wading River Town & Tennis Club; Charles A. Wood, Secretary, Wading River Town & Country Club, Inc., Edna Greenstein, Secretary.

FEDERAL AVIATION AGENCY, REGION 1,
NEW YORK INTERNATIONAL AIRPORT,
Jamaica, N.Y., June 26, 1959.

WADING RIVER CIVIC ASSOCIATION,
Wading River, Long Island, N.Y.

GENTLEMEN: Your letter of June 15, 1959, concerning low-flying jet transport aircraft in the vicinity of Wading River, N.Y., has been forwarded to this office for further handling.

Our investigation of your complaint reveals that the aircraft in question are making practice approaches to a landing at Peconic River Airport. The procedure being utilized by these aircraft is one that was developed for the recently installed instrument landing system for runway 5 at the Peconic River Airport. This procedure requires the aircraft to proceed outbound from the field on a heading of 228°, make a procedure turn at an altitude of 1,500 feet in the vicinity of Bellport and proceed inbound on a heading of 048°, letting down for a landing on runway 5. This procedure was developed in accordance with established criteria for instrument landing system approaches and meets all the requirements for the appropriate civil air regulations.

This Agency fully realizes that you and other residents of Bellport are being subjected to considerable noise, particularly during warm weather when windows in the homes are wide open. However, we are at the present time re-

evaluating this particular approach to the Peconic River Airport to see if we can bring some measure of relief to you and your neighbors.

If we can be of any assistance to you in the future, we will be pleased to help when and where it is possible.

Sincerely yours,

C. A. McKAY,
Chief, Air Carrier Safety Division.

WADING RIVER CIVIC ASSOCIATION,
Wading River, Long Island, N.Y., July 11, 1959.

Mr. C. A. McKAY,
Chief, Air Carrier Safety Division, Federal Aviation Agency, Region 1, New York International Airport, Jamaica, N.Y.

MY DEAR MR. McKAY: On June 15th the Wading River Civic Association, groups and institutions representing their people, addressed a protest to the FAA against the unwarranted low flying of planes over this area.

The limited production testing conducted by the manufacturing plant and the coming and going executive aircraft causes the community no concern. The issue resolves around the use of the "private" airfield by scheduled airlines or a flying school.

Your reply of June 26 has received careful consideration, but we desire to bring clarifying facts to your attention. The people here are deeply in earnest. To us the vibration and noise are not merely a nuisance, but a repetitious menace to life and property.

We are familiar with the approved Peconic River Runway 5, ILS. Its use during pilot proficiency checks generates no hazards or annoyance to our people.

We wish to point out that our community is located approximately 3.5 NW.—northwest of the Grumman Airport on the projected centerline of the northwest-southeast runway.

During the use of this VFR runway by commercial air carriers, engaged in pilot instrument and transition training, violations of civil aeronautics regulations and good judgment have been noted by competent individuals. Four engine aircraft on final to the southeast are observed dragging in on a flat approach just above the trees. The greater proportion of our community lies below the Peconic River published field elevation. Taking off northwest those aircraft are often observed crossing our town at less than 500 feet in level flight, landing gear still extended. In fact the gear and flaps are not retracted on some of these low and slow tours until the airplane has crossed the Long Island Sound shoreline and is well out over the water.

If the technique displayed by these pilots during their arrival and departure at Idlewild were employed at Peconic River, complaints by responsible people here would probably cease.

We are confident that a careful check of this matter——

(NOTE.—The remaining portion of the letter was not available for inclusion in the record.)

FEDERAL AVIATION AGENCY, REGION 1,
NEW YORK INTERNATIONAL AIRPORT,
Jamaica, N.Y., July 29, 1959.

Mr. SELDEN W. HEATLEY,
Wading River Civic Association
Wading River, N.Y.

DEAR MR. HEATLEY: This is in reply to your letter of July 11, 1959, concerning commercial aircraft making takeoffs and landings under VFR conditions at the Peconic River Airport.

We certainly appreciate your concern in the personal safety associated with the operation of aircraft in such close proximity to your community. The situation as explained by you does tend to indicate that pilots are not employing the proper techniques and, therefore, we are contacting all airlines utilizing the Peconic River Airport for training purposes to brief pilots with regard to this problem.

We feel confident that the pilots, when informed of this situation, will do everything possible to employ techniques and procedures which will bring relief to you and your neighbors.

Attached for your information is a copy of our letter directed to all airlines utilizing Peconic River Airport for training.

Sincerely,

J. E. ASHLEY,
(For C. A. McKay, Chief, Air Carrier Safety Division.)

JULY 29, 1959.

Mr. C. S. VAUGHN,
Operations Manager, Pan American World Airways, New York International Airport, Jamaica, N.Y.

DEAR SIR: Since the installation of the ILS at Peconic River Airport, and its utilization for training by airlines conducting training within the New York area, we have been flooded with letters of complaint concerning low flying aircraft over this area.

Some measure of relief was afforded to the residents of the Bellport area by raising the procedure turn altitude to 2,500 feet for practice approaches. However, the resident of Wading River, which is located approximately 3.5 NW.—northwest of the Peconic River Airport—have complained that commercial four-engine aircraft in making approaches to and takeoffs from this airport, are flying less than 500 feet over their community.

The residents of this community are well aware of the need for proficiency checks and training, however, they do question the necessity of making low flat approaches to a landing from so far out and in not retracting gear and flaps immediately after takeoff and establishing a higher rate of climb. They claim aircraft have been observed taking off, crossing the town at less than 500 feet, gear and flaps extended, and proceeding out over the shoreline in this configuration.

The FAA and the industry at large have a duty to the public to insure that all procedures and techniques utilized are in the interest of the public, not only in safety of flight, but in safety of property and persons on the ground. It is also to our mutual interest to insure that we do everything in our power to reduce the noise nuisance to residents living in this New York area.

We are bringing this to your attention so that you may brief your pilots. We feel certain that your pilots will do everything possible to employ procedures which will bring relief to this and other communities in the New York area.

Sincerely,

C. A. MCKAY,
Chief, Air Carrier Safety Division.

AUGUST 28, 1959.

Hon. ALBERT H. BOSCH,
House of Representatives,
Washington, D.C.

DEAR MR. BOSCH: The writer has been directed to write to you with reference to the constantly mounting menace to the health and well-being of our members and their families as well as the other residents of Rosedale caused by the ever-increasing low flying of all types of airplanes in and out of the International Airport.

It would appear to us that airplane pilots during the past 3 months have been coming in for landings over congested residential areas at practically any height that suits their whim at the moment, regardless of ceiling. There seems to be no regulation by the airlines or the governmental agencies whatever.

We know that you are devoting much of your time and effort to this pressing problem and we commend you for it. We do ask that you intensify your endeavors and assure you of our support in any remedial measures you take in this matter of vital public interest to everyone in your congressional district.

It has been suggested by competent authority that the installation of cross wind landing gear would permit approach and landings over the water in all but the most severe windy weather. It is stated that the airlines oppose such installation, since it would cost money and eliminate some payload space. If this installation is a worthwhile solution that would benefit people living near airports all over the United States, surely our elected Representatives in Congress should consider the health and welfare of the vast number affected as against the profits of our well subsidized airlines.

With our thanks for your consideration and asking that you make our comments known to your colleagues from Queens County, I am,

Sincerely yours,

MRS. L. T. SCOFIELD,
Secretary, Woman's Club of Rosedale.

LAURELTON, N.Y.

UNION, N.J., *September 9, 1950.*

Hon. OREN HARRIS,
Member of Congress, Washington, D.C.

HONORABLE SIR: It is noted in the New York Times that you presided at a public hearing on September 7 on the subject of excessive noise of airplanes at Idlewild Airport, Queens, Long Island.

I wish to report that airplanes flying over Union Township make a tremendous noise and vibration, when at low altitude which is very frequent, particularly when the sky is overcast. This happens so often that it has reached beyond human endurance. It seems that the planes fly with a wide open throttle and feathered propellers by the heavy volume of the roar. While the noise does not last very long, all communication between individuals in homes or at public meetings ceases until the offending airplane has passed.

This nuisance has been demonstrated to the mayor of Union, Hon. Edward F. Biertuempfel, who has done his utmost to have this nuisance corrected, to no avail. A recent complaint of low flying, giving specific time and plane number and initials was made to the FAA by the mayor. No action was taken on the complaint which was glossed over by stating that the plane was flying within legal limits.

May I call attention to the fact that the air transport business enjoys nearly tax free facilities in the communities where airports are located and pay no taxes to the communities in which they are a nuisance. On the contrary, competing forms of surface transportation while a nuisance in the immediate neighborhood in which they are located, do pay substantial taxes to the communities they traverse.

This country does need adequate air transportation for the conduct of normal business which requires rapid communication. However, when air transportation is enabled to price its services by virtue of most liberal subsidies and attract holiday passenger traffic and semiluxury freight traffic whose volume results in the discomfort and detriment of our communities, it is time to make a hard analysis of its value to society.

I have been a passenger on planes entering Idlewild from abroad on several occasions and wondered each time how the people felt over whose homes we swept at a low level. Now I know from the expressions reported at the hearings you presided at.

I am sure that I speak for all the people of these nearby communities that this nuisance must be abated and most certainly before those most objectionable jets become numerous.

Faithfully yours,

BURNEY K. MARTIN.

LAURELTON, LONG ISLAND, N.Y.,
September 12, 1959.

Hon. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

DEAR HONORABLE SIR: I attended the hearing at Idlewild Airport on September 7, but was not called upon to render a statement. I was representing the Laurelton Civil Association, Inc. Our president, Mr. Max Lome, was out of town, and I was requested to attend to represent the association. This last week I received a letter from Congressman Bosch, stating that as I was not heard at the hearing, that I could sent a statement direct to you and that it would be included in the record.

The membership of the Laurelton Civic Association, Inc., is very much concerned about the noise of the planes landing on runway 22; in fact I might say they are up in arms about it. The noise during July was terrific, and unless a person actually was here and heard it for himself, he could not imagine what we had to put up with. Mrs. Kipp is a cardiac, and must have a certain amount of sleep, relaxation, and rest. This, it seems, is impossible. Sleeping

pills are of no avail. The noise is so bad, it seems as though a locomotive was running through the home. These planes fly directly over our home at altitudes of only 200 and 300 feet, and we are at least a mile from the airport. We are not late comers in Laurelton. I purchased our home in June 1923, a long time before Idlewild was even thought about. I am attaching a schedule of the planes which flew over our home on July 10, 11, 18, and 20. These were nights and days in particular when Mrs. Kipp could not sleep, so she made a record of them. We cannot carry on a conversation, listen to radio, or look at the television, as the noise and interruptions are so bad.

In August, we had a little relief as more planes were landing on runway 25. The majority of the evidence and statements taken on the 7th dealt with the take-offs. We have not been bothered much with that; it is mostly the landings with which we are concerned. To change the landings from runway 22 to runway 25 and then other runways is no solution of the problem, as that is only taking it from one locality and putting it on another. I believe that the situation is so far out of hand that the only solution of the problem is to insist that at least the jets take off and land over Jamaica Bay. I believe that would hurt the least amount of homeowners in the vicinity of Idlewild. The experts and scientists surely can work out equipment which will allow jets to land and take off regardless of the direction of the wind. If the wind is too strong, let them go to Maryland.

We realize that the planes are here to stay, and that it would be impossible to close Idlewood Airport, but we do believe and insist that we, the homeowners of Laurelton, should have some rights. Our health is being ruined by the incessant noise, our property has lost its real value, and our constitutional rights are being taken from us. We paid good money for our homes, and our assessed valuation has continually gone higher, but actually the value of our homes has decreased on account of the noise of the planes. I know of more than one sale which has fallen through, after the would-be purchaser came out and heard the noise of the planes.

We believe your committee is doing a good job, and sincerely hope and pray that you will come up with a solution which will satisfy everyone concerned. Laws which will correct this situation must be passed; but that is not all; they must be enforced.

Yours truly,

ROGER C. KIPP.

Schedule of planes flying over our home on the following dates.

July 10 (a.m.): 12:05, 12:15, 12:25, 12:27, 12:29, 12:31, 12:35, 12:42, 1:20, 1:22, 2:32, 3:22, 3:29, very low.

July 11 (a.m.): 3:34, 4:10, 4:35, 4:43, 5:01, 5:09, 5:11, 5:16, continued all day.

A very low jet at 4:40 p.m.

Sitting on porch with neighbor; so noisy could not talk, so just kept track of time of planes going over (p.m.): 8:39, 8:41, 8:46, 8:49, 8:51, 8:55, 9, 9:05, 9:07, 9:08, 9:10, 9:12, 9:17, 9:19, 9:20, 9:23, 9:27, 9:29, 9:35, 9:39, 9:41, 9:44, 9:47, 9:50, 9:51, 9:52, 9:54.

July 18: three planes between 1:18 and 1:27 a.m. One at 1:40 and another at 2:25 a.m.

July 20 (a.m.): 4:20, 4:39, 4:41, 4:51, 5:01, 5:04, 5:07, 5:22, 5:31, 5:37, 5:45, 5:54, 6:01, 6:08, 6:12, 6:48, 6:52, 7:04, 7:06, 7:19, 7:24, 7:25, 7:31, 7:35, 7:37, 7:41 7:45, 7:47, 7:51, 7:55, 7:56, 8:01, 8:05, 8:09, 8:12, 8:18, 8:29, 8:31, 8:34, 8:39, 8:45, and through the day.

July 20 (p.m.): 7:48, 7:50, 7:51, 7:55, 7:57, 8, 8:36, 9, 9:05, 9:10, 9:14, 9:17, 9:19, 9:21, 9:25, 9:27, 9:30, 9:33, 9:41, 9:43, 9:45, 9:50, 9:55, 9:57, 10, 10:01, 10:05, 10:07, 10:10, 10:12, 10:15, 10:17, 10:19, 10:22, 10:25, 10:28, 10:32, 10:35, 10:37.

This timetable seems incredible, but I will swear to it. The above is by no means a complete list as we were just too played out to list more.

ROGER C. KIPP.

AUBURNDALE IMPROVEMENT ASSOCIATION INC.,
Auburndale-Flushing, Long Island, September 12, 1959.

Congressman OREN HARRIS,
Chairman of Interstate and Foreign Commerce,
House of Representatives,
Washington, D.C.

DEAR CONGRESSMAN: As a representative of the Auburndale Improvement Association composed of 550 members, I attended the meeting at the Idlewild Airport, New York City held by your committee on September 7, 1959. I was unable to bring out the problem we have had with low-flying planes, especially from La Guardia Airport, New York City. I would like to do so now with this letter.

When winds are northerly or southerly or thereabouts, which happens 4 out of 6 days of each week, the community of Auburndale, populated with small homes where vacant property is nonexistent (162d Street to 32d Avenue to 209th Street to 54th Avenue), bears the brunt of the plane traffic flying in and out of La Guardia Airport. Approximately 250 to 350 or more planes, day and night, from 5 p.m. to 11 p.m., they are on a continuous schedule at times with only 1-minute headway. Most of them flying low, 300 to 700 feet. This concentration of planes over our community was forced on us by a plan suggested by the National Air Transport Coordinating Committee in July 1955. The map and information issued by NATCC, a copy of which is enclosed. The NATCC promised us solemnly at a conference that the planes, by flying over this route, would reach at least 1,200 feet before flying over our homes. Needless to say, the pilots ignored the plan whenever they felt like, which was often, especially during the past 2 years when they completely forgot it. Complaint after complaint was filed with NATCC, with no improvement noticed.

We have suffered for 4 years needlessly because nobody was able to or wanted to make the pilots obey the rules suggested by the NATCC. By complaining to Airline Pilot Association and the airlines, we would get some relief for only a short time.

We feel that no one seems to be concerned about noise abatement except to talk or put out a lot of paper propaganda which builds up hopes and accomplishes nothing and even makes matters worse. We therefore beg you to clarify or pass a law that will give some authority full power to enforce noise-abatement regulation, especially in regard to airlines and their pilots who are at present free to do as they like as long as they do it safely. Noise abatement they completely ignore.

We feel therefore that the NATCC is a useless agency and has prevented us from getting relief from low-flying planes and the noise that goes with them.

Enclosed find samples of comments and gripes as printed in papers.[1]

Very respectfully yours,

R. CHLUPSA,
Vice President.

UNITED PROPERTY OWNERS & TAXPAYERS,
Richmond Hill, N.Y., September 7, 1959.

Hon. OREN HARRIS,
Committee on Interstate and Foreign Commerce,
House of Representatives,
Washington, D.C.

HONORABLE SIR: Having had the opportunity of attending the public hearing at Idlewild Airport, we felt many facts were omitted or misimpressions given. Had you glanced out of the window during the hearing you would have noticed that planes were not taking off from runway 25 but over Laurelton, etc. Did you observe that although Idlewild was given tax free to the port authority for aviation purposes, only a strip on the periphery is used for land-

[1] The enclosed material may be found in the files of the subcommittee.

ing strips and all but one are adjacent to densely populated areas? How can the safety of these areas be guaranteed when jets approach the narrow strips of land at 150 miles per hour? The rest of the land has only recently been built up with unnecessarily high buildings as hotels, churches, and office buildings, all private enterprises not necessary to aviation.

The Port of New York Authority is a private enterprise in no way responsible to the people or the New York State Legislature which created it. We feel that jets were permitted to come to Idlewild when, according to Mr. Wiley, they will not be prepared for them until the fall of 1960. The runway 25 has already proved to be too short as a jet has already gone through the sand fence which protects the highway at which it ends.

Since noise of 120 decibels or more is known to be mentally or physically injurious to individuals, would not the noise of jets, admittedly 112 decibels, be extremely dangerous and therefore a matter of safety.

We should like to take exception to the public statement of Mr. Quesada that the landing gear trouble of 707 jets is a nuisance, like a dead battery in a car and not an emergency. Why then is the disaster squad called out at each landing? We feel that the Federal Aviation Agency has been willfully negligent of its responsibility to the public and hope the committee will introduce legislation to enforce the responsibility of the FAA.

Respectfully yours,

MABEL OTTERSTEDT,
President.

FLUSHING, N.Y., *September 9, 1959.*

Re hearings on House Resolution 162, for the record.

Hon. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

Hon. Chairman HARRIS: Unfortunately I was unable to present my views at the meeting held on September 7, 1959, at Idlewild Airport, but I did hear Admiral Rosendahl's presentation on the 11 p.m. television newscast, to which I must take exception. He said there were few complaints received, therefore people must not be disturbed and are satisfied. As one who did complain often when NATCC was formed and the telephone number was published in the Long Island Press, and the curt and annoyed reception my telephone calls received with no replies to my letters, until I finally decided to save my money and energy as well as my pride and stopped bothering NATCC though the violations multiplied.

We moved here 21 years ago and well remember life before Idlewild, when one could sleep and live peacefully. La Guardia gave very little inconvenience at first but those days are passed.

Recently my husband was ill. It was imperative for him to have complete rest and undisturbed sleep. The only way this was possible, living between La Guardia and Idlewild, was for the doctor to prescribe sleeping pills and even then the jets still "got through."

This has been a particularly hot and humid summer when it has been difficult to fall asleep due to weather. Then when one was fortunate enough to drop off along come aircraft and jolts one back to wakefulness. Those of us who go to business are not refreshed by constantly interrupted sleep. Children just don't understand why they are constantly awakened by such horrible noise and vibration too, when a jet is too low.

It is no longer possible to watch a TV program for a complete one-half hour without interruptions when noisy planes drown out the sound and distort the picture. Many times telephone conversations must be interrupted until aircraft passes. Conversations in a normal voice with neighbors in the street are not possible without constant interruptions because of passing aircraft drowning out all other sound.

When Idlewild became the aircraft metropolis and the NATCC sent out their propaganda "How To Live With Your Neighbors" in reply to our complaints we were naive enough to think we might get used to these new sounds but this has not been the case at all. Conditions have worsened with larger more powerful motors plus jets becoming more powerful and numerous.

I have tried to teach my children respect for other peoples property as well as respect for law and order, but our everyday life with aircraft violating our privacy and disregarding our rights, it becomes difficult to convince children that might is not necessarily right.

Perhaps the earnest efforts of your committee in protecting "us little people" will at long last bring us the peace and protection we deserve, at least at night so we can sleep and rest, awakening refreshed for a day's labor.

Sincerely,

GERTRUDE B. HALPERN,
MRS. M. C. HALPERN.

NEW YORK, N.Y., *September 10, 1959.*

Hon. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

DEAR SIR: Congressman Albert H. Bosch has informed me that in connection with the hearing on House Resolution 162, held on September 7, 1959, at Idlewild Airport, those persons who either had no opportunity to be heard or who desire to submit statements, can do so.

I reside at 134–21 228th Street, Laurelton.

Enclosed is a copy of planes which flew over my house on June 27, 1959. This is but a partial list for the day. Under date of June 29, 1959, a copy was mailed to Federal Aviation Agency, at Washington, D.C., and to the Port of New York Authority. The latter informed me that a copy was being forwarded to Adm. C. E. Rosendahl, executive director of the National Air Transport Coordinating Committee. The Federal Aviation Agency informed me that I could also phone the committee.

I have heretofore made a number of oral complaints to the committee, but nevertheless have not procured any relief. Frankly, the committee is either impotent or is unable to give the people any relief.

I have since learned that these planes approach runway 22 when landing and although I was also advised that this is an instrument runway, the same is nevertheless used on days when the visibility is good.

It is my opinion that if jets are not permitted to use the runways, relief could be afforded. They are the principal offenders. I understand that London forbids the use of runways at night. It might be a good idea to adopt such restrictions at Idlewild. The airlines might then try to cooperate. Otherwise, I submit that legislation is necessary to give people the right to sleep at night and also to avoid cracking of ceilings and walls due to the low flying.

Respectfully submitted.

HYMAN SALMONSON,
Counselor at Law.

June 27, 1959: Time is approximate—daylight saving time:

	Approximate feet
11:41 a.m., United	500
11:44 a.m., National	500
11:49 a.m., not visible (trees in way)	500
11:52 a.m., not visible (trees in way)	400
11:57 a.m., Pan American	300
12:04 p.m., red line in center	500
12:12 p.m., Pan American	300
12:17 p.m., markings TEF–IAL	300
12:24 p.m., not visible (haze in way)	400
12:30 p.m., not visible (haze in way)	400
12:36 p.m., No. 2282	300
12:40 p.m., jet (red-striped nose)	300
12:43 p.m., No. 74608	300
12:47 p.m., HBM	300
12:51 p.m., TWA (blue nose)	300
12:54 p.m., N578	300
12:57 p.m., unknown (haze in way)	300
1 p.m., NE or NZ 4608	300
1:05 p.m., PHKLZ	300
1:09 p.m., PHKL	300
1:12 p.m., O–ALIN (engine missing)	300
1:15 p.m., unknown (blue nose)	350
1:20 p.m., unknown (blue nose)	350
1:22 p.m., jet (haze in way)	300
1:24 p.m., 2-engine propeller	400
1:26 p.m., N–5903	300
1:28 p.m., unknown (haze in way)	400
1:32 p.m., jet (red line)	300

All planes approaching in a southwesterly direction into International Airport. At above times, planes were south of Merrick Road, Laurelton, on 228th, 227th, and 229th Streets, but most of them were over 228th Street. To edge of airport land distance is about 2¼ miles from observation point.

LAURELTON LIONS CLUB,
Laurelton, N.Y., September 10, 1959.

HON. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

DEAR CONGRESSMAN HARRIS: May we extend to you and your committee our thanks and gratitude for the patience and understanding which was so evident during the hearing on September 7, 1959, at Idlewild Airport. It has given many of us the hope that our community will again be a peaceful and decent home neighborhood and that the "nightmare" caused by low-flying planes, will shortly be a thing of the past.

Many of us have been residents and homeowners for upward of 25 years; long before Idlewild came into being. Until a few years ago, although there was some disturbance at times, there were only a small number of low-flying planes during 24 hours and rarely at night.

During the past 2 years the situation has become steadily worse. For days at a time they have come over 20 out of 24 hours, and at times approximately 1 minute apart. I have seen them come over steadily until 1 a.m.; then an occasional plane to 5 a.m.; and from 5 a.m. on, a steady stream lasting for hours. This is over a solid populated residential neigborhood, running for miles northerly from the airport, so that rest or sleep, when we "get the works," become impossible.

I have no flying experience, but I get the impression from others who have been in our Armed Forces, that the planes are coming in too low and can come in with safety at considerably greater heights.

From time to time we have heard of "over-the-water landings" and "additional runways." To date we still have the din, disturbance, sleepless nights, cracked walls, and a health menace.

Reflection in the demand for homes is being felt and it is quite obvious that a continuance of the low-flying-plane hazard will result in greatly reduced realty values, if and when a seller is fortunate enough to find an interested purchaser.

We don't expect to stop progress or halt the flying of planes. We do believe that we do have a right to live decently and in the quiet of our homes. We don't know where the major fault lies; however, we do know that the disturbance being caused is no longer reasonable.

Again our thanks and appreciation for your efforts in our behalf.

Respectfully yours,

WILLIAM SCHREIBER,
Chairman, Civic Committee.

RICHMOND HILL, N.Y., *September 8, 1959.*

Hon. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House Office Building, Washington, D.C.

DEAR MR. HARRIS: I wish to express my thanks to you and to your committee for coming to Queens County yesterday to investigate the air traffic and noise problem here.

I hope and pray that from your deliberations may come some measure of relief for our citizens.

However, I wish to convey to you and the committee, my most emphatic protest to the attitude of Gen. E. R. Quesada, FAA Administrator, who stated in his letter to Congressman Bosch that he "had jurisdiction, but wasn't going to do anything about it at this time." Certainly the general must be fully aware of the seriousness of the problem here.

Pray God that our police department commissioner or health or fire department commissioners never take the same attitude of having jurisdiction but do not wish to use it. What a chaotic condition that would be.

Again, sir, thank you for visiting our county and I hope that you may have had even some small measure of enjoyment, in addition to your fine purpose.

Sincerely your,

DANIEL F. METTA.

(Whereupon, at 5:30 p.m. the committee was recessed subject to call of the Chair.)

AIRCRAFT NOISE PROBLEMS

TUESDAY, FEBRUARY 23, 1960

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TRANSPORTATION AND AERONAUTICS,
OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met, pursuant to call, at 10:15 a.m., in room 1334, New House Office Building, Hon. John Bell Williams (chairman of the subcommittee) presiding.

Mr. WILLIAMS. Let the committee come to order, please.

This morning the Subcommittee on Transportation and Aeronautics is to hear a report from Federal Aviation Agency on the subject of aircraft noise abatement.

For many years this committee has engaged in a study of noise problems connected with the operation of aircraft.

In writing the Federal Aviation Act of 1958, Congress expressly gave the new Federal Aviation Agency the responsibility for making regulations to protect persons and property on the ground, which is a broad extension of the rulemaking authority which had been granted to the Civil Aeronautics Board by the act of 1938.

The purpose of the meeting this morning is to receive a report on the progress being made by the FAA.

We are glad to have with us some of the men who have been working on this problem and they will bring us up to date on progress since the committee held its last hearing on this subject at Idlewild Airport last September.

I believe Mr. David Thomas, Director of the Bureau of Air Traffic Management, Federal Aviation Agency, is to make the statement on behalf of the Agency this morning and Mr. Thomas, would you introduce for the record those colleagues of yours from the Agency who will assist in this presentation.

STATEMENT OF DAVID D. THOMAS, DIRECTOR OF THE BUREAU OF AIR TRAFFIC MANAGEMENT, FEDERAL AVIATION AGENCY; ACCOMPANIED BY BARTHOLOMEW S. SPANO, ACOUSTICAL EXPERT

Mr. THOMAS. Thank you, Mr. Chairman.

Mr. Chairman, I am David D. Thomas. I am Director of the Bureau of Air Traffic Management of the Federal Aviation Agency.

We have with us this morning Mr. Bartholomew Spano, who was formerly employed with the FAA and is now a private consultant. He is with us this morning to demonstrate and define noise.

We have with us Mr. Howard, who is our General Counsel.

Mr. Tighe, who is the executive assistant to the Deputy Administrator.

Mr. Menter of our General Counsel's Office.

Mr. Hudson of our Flight Standards.

Mr. Baker of our Bureau of Flight Standards.

Also Mr. Williams of our office.

Mr. HARRIS. Mr. Chairman, before Mr. Thomas proceeds, I think the record should show that in addition to the members of the committee in attendance here we have a member of our full committee, not on the subcommittee, Mr. Bob Hemphill, of South Carolina, who has displayed an interest in this subject for some time.

Mr. WILLIAMS. Mr. Hemphill, if you will recall, was at Idlewild with us and sat in on the hearings last September.

Mr. HARRIS. Yes. We are also glad to have Mr. Cecil King, dean of the California delegation, I believe; aren't you, Cecil?

Mr. KING. I am next to dean. Harry Sheppard is still there, I guess.

Mr. HARRIS. We have received a great many communications from Members of Congress interested in the noise-abatement problem in California and particularly at the Los Angeles International Airport.

We have received resolutions of this committee which are in the files, Mr. Chairman, about the urgency for some action to be taken in that area.

I think the record should show here that the Federal Aviation Agency has been giving consideration to the problem out there as well as Idlewild and some other places and some time ago issued rulemaking proposals affecting the Los Angeles Airport; isn't that right, Mr. Thomas?

Mr. THOMAS. Yes, sir, that is correct. We issued notice and obtained comments. It will appear in the Federal Register this week.

Mr. HARRIS. I have discussed with Mr. King and some of the others, including Mr. Moss of our own committee, who is also interested in it, and have pretty well committed you, Mr. Chairman, to holding hearings out there on the subject sometime later on in the spring, not any definite date, but at a date that can be arranged conveniently.

Mr. WILLIAMS. That is not a hard assignment, Mr. Harris.

Mr. HARRIS. I think it can be arranged to have a hearing out there similar to the one that we had in New York, though I doubt if there would be quite as many outspoken witnesses in Los Angeles as we had in New York.

Mr. KING. I would hold my judgment on that, Mr. Chairman, until you come to Los Angeles. You might be surprised.

Mr. HARRIS. Very well.

Well, I did want the record to show that and I also want the record to show that Congressman Al Bosch, from New York, is interested in this problem and has a resolution before the Rules Committee on which we have been before the Rules Committee. This is another example of what the Committee on Interstate and Foreign Commerce is trying to do with the facilities that we have, which we think more appropriate for handling this than any other group.

I wanted Mr. Bosch to know that we are moving on this as we promised the Rules Committee last year that we would.

And, of course, there is Congressman Becker, who also showed his interest in the problem on behalf of his constitutents in New York, and then Congressman Derounian, of New York, and a member of your subcommittee, who is also interested in the problems up there.

Thank you.

Mr. THOMAS. Thank you, Mr. Harris. Mr. Chairman, I have a prepared statement and I think it might save time if I read it, if it meets with your approval.

Mr. Chairman, and members of the committee, the Administrator deeply appreciates this opportunity to present some of our findings and actions relating to the aircraft noise problem since we last appeared before you on this subject. Both Mr. Quesada and Mr. Pyle regret that circumstances beyond their control prevented them from appearing today. Both are away from Washington.

Prior to reciting the actions that we have taken on the noise problem, it would be beneficial, if the committee will permit, for us to both define and demonstrate noise. We have with us today, Mr. Bartholomew S. Spano, an acoustical expert, who while previously employed by the Federal Aviation Agency, conducted numerous studies on aircraft noise as it affected communities adjacent to airports. Mr. Spano, if you so desire, will present the essence of the findings of these studies as background for further consideration of the aircraft noise problem.

Mr. Chairman, if I have your permission, we would like Mr. Spano to proceed with some of the demonstrations.

Mr. HARRIS. Surely, by all means.

Mr. THOMAS. Thank you, sir.

Mr. Spano.

Mr. SPANO. Thank you.

To best attack the problem of aircraft noise and community reactions to them, it is desirable to really dig into the basic acoustics of noise, or sounds, and the human reactions to them.

The whole question of aircraft noise and the rather intensive community reactions to it has become a complex problem. We in FAA—I say "we," I was with FAA for a good many years, I only recently left them—I am pleased that they asked me to come back to give this presentation for them—felt that these studies were essential before we could really attack the problem.

We felt you would be interested in some of the technical intricacies of noise so that when we get down to analyzing the community problems we are faced with, they would be more understandable.

Now, we will start off with sound and we will dissect it, as a surgeon does, into its basic dimensions.

It has ony two dimensions. One is the frequency or pitch and the other the strength of the signal or intensity.

We will take pitch or frequency first and can we have the first slide please.

This slide depicts the frequency spectrum of audible sound. That is the sound we can hear as human beings which range generally from about 25 cycles per second up to about 15,000 or 17,000 cycles per second.

This chart goes only to 10,000 cycles per second because of two reasons. One, aircraft as we know them today create very little sound above 10,000 cycles per second, and, two, what little sound they do create is so rapidly absorbed by the atmosphere that it never gets far enough away from the airplane to really cause any serious noise complaint problem.

Now, the frequency spectrum is divided into three basic sections, each having its own characteristics.

From 20 cycles per second up to about 200 cycles per second are the low frequencies. Piston engine airplanes have considerable energy in this low frequency range. The sonic boom energy is very much in this area.

The midfrequencies or speech frequencies happen to coincide about 300 cycles or so per second up to about 4,000 cycles per second. They have their own special characteristics.

From 4,000 to 10,000 cycles per second, are the high frequencies or hissing sounds.

I would like to give a brief demonstration of the frequency spectrum in pure tones.

Every sound we hear, complex though it may be, such as a symphony orchestra or a simple pure tone like a piccolo can be sliced down to thin enough slices so that they can be traced to a combination of the pure tones that we are going to hear. [Demonstration.]

Now, that was a quick runthrough.

We are going to run through it again and this time we will identify the frequencies as we go through the spectrum.

The frequency spectrum of audible sound, 30 cycles per second.

60 cycles per second.

100.

200.

300 cycles per second.

400.

The start of the speech frequencies.

600 cycles per second.

800.

1,000 cycles per second.

2,000 cycles per second.

3,000 cycles per second.

4,000.

The end of the speech frequencies.

5,000 cycles per second.

6,000.

8,000 cycles per second.

10,000 cycles per second.

The end of the frequency spectrum for practical airport acoustics work.

This, then, is the first dimension to sound, its pitch or its frequency. Now, let's look into the second dimension, the strength of the signal or the loudness of the sound.

May we have the next slide, please.

The strength of the signal or the loudness is measured in decibels. The decibel is a tenth of a bell, named after Alexander Graham Bell, and it has some eccentricities to it, and it is best that we understand

these few eccentricities. For example, if you have 100 decibels, a 707 No. 1 engine that is starting up and No. 2 engine is started and also creates 100 decibels, 100 decibels plus 100 decibels does not equal 200 decibels. It equals only 103.

Now, we will explore this eccentricity here in just a few minutes.

If you were to add a 90-decibel sound to an 80-decibel background sound, for all practical purposes, you would still end up with only 90 decibels.

Let's now explore this eccentricity of the decibel.

Here we have the decibel scale. Here the acoustical power necessary to create these various loudnesses of sounds and here in association with common everyday things various noise levels.

Now, a decibel is not an absolute value. It is simply a ratio of one value to another. So that when you say a quiet automobile is 50 decibels, you are saying it is 50 decibels more than a base level because it is a ratio, 50 decibels more than zero which is the base reference for the decibel scale and zero decibel as defined as the faintest sound a person with normal hearing can just barely discern.

So remember, then, that zero decibel is not the absence of sound but of very faint sound, the base level to which all other levels are referred to.

Now, let's take a look at one, the acoustical power necessary to create various sounds, our human reaction to these sounds in terms of being faint or loud or very loud, and the decibels that they represent.

Ten decibels, 10 units of acoustical power, rustle of leaves.

Fifty decibels, still a rather quiet sound, a quiet automobile, but it requires 100,000 units of acoustical power, a tremendous increase.

One hundred decibels, a riveter at 55 feet or a DC–8 at perhaps a 1,000 feet on takeoff.

Ten million units of acoustical power are necessary to create that loudness.

And to go up to 130 decibels, it says here threshhold of painful sounds, that is really acute discomfort. Threshold of painful sounds is 140. It requires 10 billion billion units of acoustical power. It just so happens that our human ear is eccentric. To hear faint sounds it requires very little acoustical power but to hear loud sounds, tremendously greater amounts of acoustical power are necessary for us to discern between a loud sound to a very loud sound.

Now, we could, if we wanted, use just straight acoustical power to represent the various loudnesses of sounds. But this is a rather unmanageable large set of numbers and so they resorted to a device that the mathematicians use. They use the logarithms of these numbers which is simply a compressed scale to have a nice manageable set of numbers representing a very wide range.

And some decibels are simply the logarithms of these numbers. They are simply a device to get a nice small manageable scale which represents this tremendous range, and it so happens that we hear on a logarithmic curve, at least rather closely; let's assume that at this point of the demonstration.

May we have the next slide, please.

Here is another depiction of the decibel scale to show its eccentricities. To go 10 decibels to 20 decibels, you need this area of acoustical power. But to go the same 10-decibels increase from 110 decibels to

120 decibels, a tremendously greater amount of acoustical power is necessary.

That is the way our human ears hear these things. This also explains why if you have 120° noise and put a 10° suppressor on it and get it down to 110 decibels, you have cut the acoustical power by one-half but you are working and fighting against the logarithmic listening curve of the human ear and the human ear hears only about 10 parts out of 120 as far as reduction is concerned. This is what makes jet suppression such a difficult job, fighting against the eccentric way of the human ear hearing very loud sounds.

The next slide, please.

This, then, are the two basic dimensions to sounds.

Hold that for just a moment.

I have a brief demonstration of certain decibel levels.

This is a decibel meter. Noise is such a popular thing these days that the delivery date on noise meters are running 90 days behind. In fact, mine hasn't come yet. This is one I had to borrow. Let me explain briefly.

Let's first understand the mechanics of sound. Every sound we hear, no matter, again, whether it is a complex sound like a, well, a jet engine, with frequencies right across the board or a pure tone like the thousand-cycle tone like we hear on the FAA four-cause range, of sounds we hear has the same basic transmission through the atmosphere. It first compresses the air in front of it and then rarifies it, compresses it and then rarifies it and this pulsing compression and rarification of the air is the means of transmission of all sounds through the atmosphere.

When you have a vacuum where there is no medium for transmission of sounds, sound simply cannot transmit itself. It must have medium.

The decibel meter works on a very simple principle, though its price would never belie that.

The pressure of the sound, the sound waves, first a positive wave and then a negative, this pulsing effect, restricts the diaphragm on this microphone. The diaphragm is a pressure-operated instrument, and it simply waivers in accordance with the frequency and the strength of the signal.

The wider the deflection, the greater is the electrical impulse it sends through. That electrical impulse is amplified, calibrated, and comes out on this meter here which reads directly in decibels.

This compression and rarification is actually a pressure, and when we measure the loudness of a sound we are actually measuring the pressure of the sound wave itself. It is a very real pressure. Even zero decibel, the faintest sound we can just barely discern, is a specific pressure, just like the air pressure we have in our tires. It is a very faint one—0.002 times per centimeter squared.

Now, let's for imaginary purposes measure what is the decibel level, what we would call the ambient noise levels in this room. It is rather high because of the noise that is coming through the window and we will just measure it.

The ambient noise level in this room is 66 decibels. As you may know, the maximum noise level that is allowable for ground runup in the Los Angeles area is only 60. That is on a weighted scale that makes it even less than 60.

So it is interesting to note that we are actually 6 decibels plus above what is the maximum allowable ground noise runup in the Los Angeles area at the airport boundary fence.

We will take some ordinary program material and run it at about 75 decibels. [Demonstration, music.]

This is 75. The average of that was actually 78.

We now have another signal which is 13 decibels higher or about 90 decibels. This now would be rated as a pretty loud sound for inside the home. [Demonstration.]

That was 88 decibels.

May we have the next slide.

We will spend just a minute with this. This is what we call the octave band analysis.

In order to depict the quality of a sound, that is, its frequency distribution and the strength of it, that is, whether the maximum energy and a broadband cycle in the high frequencies or the low- or mid-frequencies. This is the chart that is popularly used. You see it in the trade magazines very regularly. What they have done here is taken slices out of the frequency spectrum. The first slice is from 20 to 25 cycles, very low. The way this is done is a series of electronic filters are used to filter out everything except these specific slices in the sounds that we are hearing Then the loudness of each of those slices of the spectrum are simply plotted here in decibels. This happens to be a DC–7–C at 100 decibels on takeoff.

The first slice that is tested, 20 to 75 cycles, is 90 decibels.

These are standardized cycles of the frequency bands.

The next slice is 95 decibels.

The frequency or octave bands are each double, 150 to 300, 300 to 600.

What does this show? It shows simply that in the low frequencies from 20 to 600 cycles per second you have the majority of the energy of this particular noise. It is a DC–7 which is a low frequency rumbling noise. This is a device to quickly tell where the energy is distributed over the frequency.

This completes basic acoustics, and I would like to have the slide off now, please.

We have talked about the generation of noise. Now, let's talk about the transmission—transmission of an airplane overhead as it goes down into a community, what it does to different types of construction and the different types of frequencies, their characteristics in going through various houses.

Let's consider noise going through a wall. Literally noise cannot go through a wall. Even though you may hear it on the other side it can't go through, of course, unless there are holes on it but if you have a large wall and it is relatively light and relatively flexible, as houses are in the approach paths of many of our major airports, a low frequency sound having its basic quality of, first, a compression wave and than a rarefaction is a very real pressure. It actually pushes and pulls on the wall until the wall is set up in motion at the same frequency as the exciting sound. Then, the wall radiates on the other side that same noise. The heavier the wall, the harder it is for the sound to move it and, therefore, the sound will come through weaker.

Now, let's examine what happens with a high frequency sound. A high frequency sound pulses at an extremely rapid pace. A

high frequency sound, say, of 4,000 cycles per second which is the dominant frequency of the compressor whine of the Viscount and perhaps 707's and DC–8's.

This very high pulsing as it strikes a wall tends to set the wall into motion but the wall having mass simply refuses to pulse at the rate of 4,000 frequencies per second. So that high frequencies when they hit a wall or even the simplest type of construction, like a plain glass window, cannot set it in motion because it is going too fast; instead it bounces off and is deflected backward.

So, we have now a very sharp contrast in the transmission qualities of jet noise and piston engine noise.

Piston engine noise which is very low frequency can set walls, windows, roofs in motion so that it can get inside the house, causing fairly high noise levels inside.

The high frequencies of the jet, however, are unable to get through as easily and if you have the jet noise and the piston engine noise outside of a house both at the same decibel level, the piston engine noise will be louder inside the house than the jet noise.

This is a basic phenomenon.

I am not drawing any comparison. I am just talking about the basic acoustics and comparisons.

Now, there is another important characteristic as far as the transmission of sound that shows sharp difference between piston and jet aircraft.

Piston engine noise being low frequency can actually travel through the atmosphere with relatively little reduction. The only reduction it experiences is the amount of reduction because as the sound starts—let's take a basic sound. We will say we have a sound that will go out in all directions and it is at a constant level. It is just started and its energy goes out in a sphere. It is covering a sphere of about that size [demonstrates] and the amount of pressure here is spread over this much of the sphere. As the sound goes out farther the sphere gets larger and larger, and then the same amount of pressure has to be spread over a much larger sphere. The unit pressure drops down and the noise gets lower as you get farther away.

This is a complicated acoustician's way of explaining that as you get farther away from the source your sound gets lower and it is because of this spherical divergence. It is spent over larger and larger areas.

However, the high frequencies of an additional attenuation are lost through the atmosphere. The low frequencies to transmit through the atmosphere pulse through the air, first compresses it and rarefies it, and these pulses go out in the spherical pattern. The air doesn't mind being pulsed at low frequencies but at high frequencies, say of 2,000 cycles per second, air actually has mass and when the pressure or pulsing gets up too high, let's say 2,000, this high frequency runs into trouble when it hits the air because the air being of some weight tends to refuse to be pulsed too rapidly. As the frequency increases, say, at 10,000 cycles per second, the pulsing is so rapid that the air simply refuses to pulse with it and the sound is very rapidly absorbed and only gets a very short distance away.

Now this is rather important and explains in part why the compressor-whine noise that is so loud at an airport does not become a problem to the community outside of the airport. The compressor whine is about 4,000 cycles per second, very high frequency. The air simply causes a great loss when that pulse rate tries to go through it and you have a very rapid attenuation. Piston engine noise, on the other hand, will have only the loss due to spherical divergence.

There is one other quality about sound, and that is high frequency sound waves as high frequency electromagnetic waves of very high directional qualities. It can actually be directed and pointed. The compressor whine which we will hear shortly, you hear when you see the airplane coming at you. If the airplane is past you, it almost completely disappears, whereas a piston engine noise being low frequency, low frequency has the characteristic of not being directional but going out in all directions at once.

This covers our transmission of sound through the atmosphere, what it does to homes.

Now, let's take a look at the human being as he receives these sounds and see whether there are any differences there.

Here I have a demonstration. This is a new one. Even the FAA people haven't seen this.

We have various kinds of sounds at various levels. Some are irritating. Some are not. [Demonstrates.]

That is not a very loud sound, but it happens to be a particularly irritating one. It happens to be the—in the highest frequencies, and if I played it long enough, you would probably throw me out of here.

We now want to examine rather closely the reaction human beings have to different frequencies at different levels.

May we have the next slide, please?

Two physicists, Fletcher and Munson, some 40 or 50 years ago, long before the advent of the jet engine, felt that human beings had another eccentricity of the way they heard the various frequencies, and so they conducted what are known as a series of sound jury tests.

They took a cross section of people representing a wide community, and they subjected them individually and then selectively to various sounds at different frequencies and at different intensities or different decibel levels.

They played only pure tones, and these are the mean curves of the results of this average group of people as to their reactions to different frequencies.

Here we have frequency on the bottom 20 cycles per second, 100 cycles per second, 1,000, 5,000 cycles per second.

Here we have the decibel scale, the loudness of the sound, 0, 40, 80, 100 decibels.

They first played a 1,000-cycle tone at zero decibel, and, remember, that is already a sound level, the faintest sound a person with normal hearing can just barely discern.

This is the point here. Zero decibel, 1,000 cycles per second.

Then they lowered the frequency to 30 cycles per second, and it was necessary to increase that 30-cycle-per-second note way up to 63 decibels before this average group of people would say that that 30-cycle-per-second sound sounded as loud as a 1,000-cycle tone at zero decibel.

It just so happens at very weak signal levels our ears are extremely insensitive to low frequencies.

This explains the more sophisticated hi-fi systems that now have a loudness control instead of a good old-fashioned volume control.

What they do is simply this. Knowing that we have deficiencies in our hearing of the low frequency at low levels, as you turn the volume down on the hi-fi system, it automatically cranks in a considerable bass boost to make up for this deficiency in our hearing at the low frequencies at low levels.

But we are not concerned with these theoretically low values here. We are concerned with real loud noises of, say, 100 decibels, up here.

And here we find that in 100 decibels, a 1,000-cycle-per-second tone sounds just as loud as 100 decibels at 30 cycles per second.

But let's examine the higher frequencies here. We notice that there is a characteristic drop in this entire family of curves. We find here that 100 decibels sound at 1,000 cycles per second, if you raise that to 3,000 cycles per second, this point here, you have to reduce it down to only 92 decibels, or 92 decibels at 3,000 cycles per second sounds as loud as 100 decibels at 1,000 cycles per second.

It just so happens that our ears happen to be extremely sensitive in the range of about 2,000 to 4,000 cycles per second, and we hear these sounds louder than any other sound in the entire frequency spectrum.

Of course, this is what is really catching hell for the jets because the jets unfortunately have their maximum energy peaking through this particular frequency—frequency which we hear louder than other parts of the frequency spectrum.

Now, I have a sound demonstration tape. It is a pretty well-known one. It plays 100 decibels of a DC–7 and then 100 decibels of a large jet transport.

I will set up the sound level meter here, and we will find that both of these sounds are within one or two decibels of each other. They are both a takeoff. They are both 100 decibels.

Let's see what our human reaction to them is. In terms of the piston engine noise, it is over in the low frequency end and the jet engine noise is in that high frequency area where our ears are more sensitive.

On this first run, because I won't predict the acoustical dampening of Congressmen or the rest of the people in the room—"acoustical dampening" is a term that means when you have a lot of people in a room the room starts to absorb more sound, you get a certain decibel level, and you have to turn on more power.

I am going to take a look at the first one to make sure I have the level set right. [Demonstration.]

Overall level, 100 decibels.

I will hold this up. [Demonstration.]

The peak was 100 decibels and the average 10 seconds was 98. [Demonstration.]

The jet was actually two to three decibels lower.

First, piston aircraft, overall level, 100 decibels. [Demonstration.]

Again the net overall level 100 decibels. [Demonstration.]

So that we see now the jets unfortunately have incurred another problem. Over the long distance it takes for the jets to go at the speed and carry the number of passengers and of the range that it does require tremendously greater power than the largest piston engine airplane and under certain types of operations it may actually measure sound pressure level which is somewhat higher than a piston engine

airplane. But in addition to that, we also incur the unfortunate situation that the frequency of the jet happens to be in the area where we hear it, as human beings, louder.

So that we have this double job now of trying to get a tremendous improvement in air transportation without any increase in noise and at the same time a noise that is actually heard louder by human beings because of the way we are.

That completes the part on human hearing.

We will now go on to jet noise suppression techniques.

May we have the next slide, please.

Here is a typical jet engine, first a military engine and then used by the large jet transports. It has a number of sources of noise that come from it.

One source is the inlet noise, the compressor whine, the real shrieky sound we are now getting familiar with. Highly directional, about 4,000 cycles per second. You hear it generally only when you are in front. Back here you will seldom hear this shrieky compression whine.

We have radiated noise, that is, combustion turbulence which actually comes right through radiated out the side.. Then we have turbine noise here which is a whine but it is masked completely by the exhaust noise. We have the turbulence of the combustion which is radiated outward and which we can hear but the loud noise we hear that is typical of the jet engine doesn't occur within the engine at all but several nozzle diameters downstream.

May we have the next slide, please.

The jet engine actually gets its thrust by a tremendous passage or mass flow of gas. The gas that comes out of a jet engine comes out at supersonic velocities of about 1,800 feet per second. When these tremendously high velocity gases come screaming out the end of the exhaust, it cuts into the relatively still outside air and causes a violent shearing action between the supersonic gas and the still air and tremendous turbulence takes place where this mixing occurs, and this turbulence is the jet noise that we hear that is occurring downstream of the engine. That is one of the reasons why we try to control or suppress the joint noise. The exhaust noise is so difficult, it is actually beyond our hands to sort of put clamps on it, as it were.

Now, let's take a look. Here we have a darkened test cell chamber. This is a standard jet engine. The exhaust gas is coming out in this direction. Mineral oil has been injected into the exhaust gas to make it particularly smoky and visible, and a sharp ray of arc light has been cut right through the cross section of the exhaust gas, so that it will be visible to the engineers who are trying to study it to best lower its noise.

We have found that one nozzle diameter downstream we have a hard-core doughnut. This is the cross section of the exhaust gas at about 1,800 feet per second. We find that as it travels downward until it is five nozzle diameters down that this doughnut has distended itself considerably. It has begun to mix with the outside air, and as it does that it slows down.

This is a very important consideration, because the noise varies as the seventh power of the velocity of the exhaust gas. That means

simply that with a relatively small reduction in the velocity of the exhaust gas you get huge reductions in acoustical power.

This then is the basic principle of all noise suppression. Accelerate the mixing of the exhaust gas with the outside air at the earliest possible point and you will have reduced the noise of the jet engine, and that is precisely what all suppressors do, and that is why they are sometimes called mixing nozzles.

Here we have a cookie cutter-type suppressor that is mounted on the engine, and the same test cell setup.

One nozzle diameter downstream we find the doughnut considerably distended because of mixing with the outside gas. The velocity has been decreased because of the mixing.

Here five nozzle diameters downstream we see there is a larger distention of this doughnut as compared to this, and additional noise suppression has been achieved.

Now, let's take a look at a typical suppressor.

Mr. WILLIAMS. Is the effect of that to lower the frequency of the sound?

Mr. SPANO. Generally the effect is to raise the frequency. For example, whenever you have a flow of gas and, say, you are blowing air out with your mouth, you can hardly hear it, but if I try to expel the same flow of gas with my lips tightly pursed you will then hear a higher frequency sound. We will get into that in just a moment, because this is one of the real difficulties with suppressors.

Here is a typical suppressor or a mixing nozzle. The exhaust gas that is normally allowed to come out completely unimpeded now has this device clamped onto the exhaust end. The exhaust gas now is forced to come through these convolutions and as they come out in these radial slices of exhaust gas, secondary air of about 500 miles an hour, the speed of the airplane, comes through, and these slices cause vortices that cause mixing almost immediately upon the exhaust gas coming out. The mixing slows down the velocity. The velocity brings you noise suppression, and this is one typical type which we call a daisy lobe nozzle. You will see this on the Convair 880.

I should point out that suppression, however, is not achieved without its tremendous penalties. The jet engine, after all, is a mass flow engine. Fantastic quantities of gas have to pass through it to develop the tremendous power that it does, and this tremendous flow of gas is at extremely high supersonic velocities.

Anything that impedes the flow of this gas is going to slow down the velocity and therefore slow down the thrust. Of course, you can picture instead of coming out a nice free open end like that it is now forced to come through these convolutions here. You have impeded the flow of gas, you have cut down the thrust of the engine, and you are definitely penalizing an engine when a suppressor is mounted on it, and some of the penalties are extraordinarily high.

In addition to that, there is another loss that a device like this incurs. The jet transports that we know fly at about 550 miles per hour. This is close to the rise in the drag curb when it starts to approach supersonic speed, and the drag rises rapidly at about that point. When this device is introduced into the airstream, the additional drag around these convolutions is also quite high. So you have the penalty of not only a thrust loss but drag increase.

These things have to take tremendous acoustical power. They are quite heavy. They have to be to be strong enough to do the job. So there are penalties, very real ones, that are involved in the whole question of noise suppression, and the real struggle is always to draw the best compromise between reasonable suppression and reasonable losses that will make the airplane still a reasonable machine for carrying air commerce.

Now, I would like, if I may, to just whisk through a few slides on noise suppressors and show you some European developments. May we have the next slide, please.

This is the result of NASCA or NASA research on noise suppression. NASA has done a great deal more work than is generally known or it is given credit for.

Here we have a daisy lobe, such as this one. Here it is with the center body. Here the multitube, nine tubes in actual straight line arrays, which is the basis of the 707-type suppressors, and here we have the DC–8 genesis, a daisy lobe with an ejecteric sort of barrel hoop that is extended just beyond the suppressor.

The next slide, please.

Those were actual scale models that were used with steam to check actual noise suppression. Now, this is a picture of further NACA work. Much of the work that was done was on the ground, and the suppressor loses its effectiveness the faster the airplane goes, unfortunately, and here was a test by NACA on a B–47, a daisy lobe suppressor with the ejecteric to determine how much loss occurs in the suppressor in flight.

The next slide, please.

This is a slide of one-tenth scale models of Boeing suppressors. Here is a cookie-cutter type, which has been found not to be as good as the multitube. This is 32 tubes. Here is an interesting development that is now on the 707320, the big intercontinental aircraft.

The next slide, please.

This is the suppressor on the Convair 880, the daisy lobe, with the center body, and this part here happens to be the thrust reversal.

I am running way past my time, and I am sorry, Mr. Thomas, but I will move along here.

Next slide, please.

Well, this is the 21-tube suppressor on the 707.

The next slide, please.

This is the nine-tube suppressor on the 707320. This is a compromise in regard to your question earlier, sir. It does so happen that when you go into a whole series of small tubes that the tendency is to raise the frequency of the exhaust gas, and we know that the higher frequencies we hear louder, and if all of the people that were doing the complaining were outside in their front yard hearing it just coming through the atmosphere, they would hear the noise louder, but if they happened to be inside the house, the high frequencies are attenuated more than the low frequencies, and inside the house it might turn around and be actually quieter.

My study shows that most of the complaints come from people inside their house. Now, if this is true, then the question of penalizing the high frequencies is something that perhaps should be examined a little more closely. This is just an avenue of research and study

that is being carried on. This suppressor is a compromise between not pushing the energy too much into the high frequencies and not causing too great a loss of power, because if you cause too great a loss of power the airplane having less power can't get as high above the community, and therefore it may be noisier with a suppressor that costs you too much power.

In fact, an interesting NACA experiment on an F–86, about 5 years ago, early in the noise suppression, tested a suppressor which gave about 14 decibels suppression. It looked pretty good, but the pilot noticed a considerable loss of power. One of the bright engineers said, "Let's take off the suppressor and fly the airplane at that reduced power," which was the same as the net power you were getting from the airplane. They were very astonished to find that by simply cutting the throttle back to the same power without the suppressor it got up higher and caused less noise and was no noisier than with a suppressor at full power. So we have to watch the whole business of what you can do with suppression.

Unfortunately, it is a relatively limited area that we can go further on suppressors to achieve any large reductions; that is, any greater increases in reduction than we have today, but we will go into that in just a minute.

The next slide, please.

This is the suppressor on the Comet. It reduces the noise level only three decibels. The airplane seems to be a pretty-well-behaved airplane as far as noise is concerned. It has only one difficulty. It can't operate at a profit.

The next slide, please.

This is the DC–8 suppressor, a rather sophisticated design, using a daisy lobe principle here. Here is the barrel, or ejecter ring or hoop, which gives it less of a loss on takeoff, because of thrust augmentation.

The next slide, please.

This is the facts-of-life curve with noise suppression, and if we can sum up at this point, never before in commercial airline history was a suppressor placed on an airplane until the jets came along, and this was not a meager attempt, this suppression, this change in philosophy. This has been a massive program undertaken by the Government, NASA research, the aircraft manufacturers, the engine manfacturers, private research institutions, and a number of foreign groups.

Noise suppression is a tough thing to accomplish, much tougher than when this new field was entered about 5 years ago with the advent of the civil jet transports. I have been with people who would suddenly come up with a new, crazy idea of how they think they can suppress noise, such as inject water, use electromagnetohydrodynamics. It is just fantastic, the extent to which some of the scientists have gone in the test of theorizing and development of models to get noise suppression. They have done everything they could, but we come up with what we call the facts-of-life curve about noise suppression.

Here we have what we call, simply, the Lighthill parameter. This is merely a physicists' chart that says every air jet system will inherently have 1 percent of its energy going into exhaust noise, and that no matter how you try to alter this basic metaphysical factor with air jets, you are not going to make much of a dent, a real dent in the problem.

Plotted on this are a whole series of our engines, the suppressors, and we find that this phenomena is altogether too true, and so a big change has taken place now to put the emphasis into what is a much more lucrative field, and that is the turbofan engine.

May we have the next slide, please.

These turbofan engines will start to show up on aircraft by early 1961, and here is a typical turbofan engine. From here forward it is a straight jet. In fact, this is the CJ on the Convair 880.

Here is the compressor. Here are the combustion chambers. The exhaust gas drives these three turbines that in turn drive the compressor, and then, normally, the gas would simply exhaust through a suppressor.

Here, however, they have tacked on a free-floating turbine. This device here—theoretically you could hold that still and the exhaust gas would go through. It is simply not geared to any other part of the engine. Here is the exhaust gas passage, and it drives this blade here at about 6,000 revolutions per minute, and then through a cell in the casing this blade extends, reverses its pitch, and then becomes a propeller. In essence, this is a turboprop adaptation to a jet engine.

Next slide, please.

This will depict it, perhaps, a little better. So what we really have, it is interesting to note that in essence what has been necessary to do is to go back in part to propellers and the turbofan engine is a combination turboprop and jet engine.

With it you can get greater fuel efficiency, and you can, for the same amount of power, get a marked reduction in noise. Now, let's examine that. All right, now, this is simply the flow description of the same picture we had just seen. Here are the combination chambers, the three turbines that drive the compressor, and here is the free-flowing turbine. The exhaust gas comes through here, drives this turbine here, and then through here, which is a cowl around the outside of the engine. The airplane is moving forward at 500 or 600 miles an hour, and there is a certain amount of ram air that is being scooped into that scoop, and then it is picked up by this propeller here and accelerated considerably to about 1,000 feet per second.

The reasons for marked reduction in noise are two: One, we have here a hard core of exhaust gas, and we know that this hard core of exhaust gas at supersonic velocity when it meets the outside still ail causes this tremendous turbulence, which is the noise we hear, and this is at 1,800 feet per second.

By taking an intermediate shroud of air at 1,000 feet per second, it relatively insulates this hard core of exhaust gas from the outside gas and gives you a sheared radient instead of a violent shear, and the turbulence is less, the mixing is less violent, and the noise is less. This is the basic principle of the turbofan engine.

There is one other phenomena. Energy is required to drive this turbine, and when it drives this turbine the energy slows down this hard core exhaust gas in the center, and when you reduce that exhaust gas velocity, you also get additional reduction in noise. So that the cross section of this velocity is now at an average less than what it would be for the same thrust if it were a pure jet engine.

Because this is a relatively lower exhaust velocity, a suppressor wouldn't do much good if you were to add that on top of a fan engine.

The suppressor works at its best when the exhaust gas velocity is extremely high. As the exhaust gas velocity decreases, a suppressor becomes relatively less effective, and that is why you may have noticed that there isn't much talk of putting suppressors on turbofan engines.

Mr. HARRIS. Who makes this engine?

Mr. SPANO. That happens to be the General Electric.

Let's have the next slide.

Both General Electric, which makes the engine for the Convair 880 and Pratt & Whitney, which makes it for the DC–8 and 707, both have fan engines. They have different philosophies, though. The aft fan is the GE system, and the fore fan is the Pratt & Whitney. It is right here, and I will show it to you in the model.

This is just a picture showing the aft fan, the GE engine, with the double intake. Here is the basic jet engine. The intake air goes through this compressor and out the normal exhaust. Then you have this large scoop that houses the turbine, the free-floating turbine, and the propeller, and then for aerodynamic reasons they have extended this cowl all the way out here so that the air runs along this part of the engine and then comes in here.

Another reason for this is the turbofan engine has a tendency to be higher in noise level than the high frequencies, the compressor frequencies, that are particularly irritating. By adding this cowl it tends to cut down these high frequencies of the fan itself, and causes less irritation, and then also this can in addition be treated with acoustical material to give you further reduction of the compressor whine.

Here is a typical jet engine. May I just slide through here? This happens to be one my son made. I guess it is just a good representative engine.

This has flown in millions of hours in thousands and thousands of military aircraft, but when this engine was used for commercial transportation the radical change was made, and that is the suppressor has been added. This happens to be a special design suppressor. It isn't flying, but this is what I call a cycloacoustical suppressor. This is very much a brand new phenomena, and represents a tremendous effort. Unfortunately, it didn't do as much as we would have liked or anyone else would have liked, because the basic job itself was just bigger than we had realized, but it is fair to say that 5 years ago when this program started, with the tremendous money, effort, and drive behind it, that it is reasonable to assume that they could have accomplished almost anything with noise suppressors.

Now, the new effort, the turbofan engine, is the design with the elephant ears. The fourth fan, the Pratt & Whitney, is this addition to the basic engine. In this design the fan is simply attached right on the compressor shaft and it drives a secondary flow of air that comes out in these elephant ears, this design here.

The reason for the slot is simply the pylon that attaches the engine to the wing comes through this point.

What about the noise reduction in this engine? De we have problems with it? Well, yes, to both of those questions. Generally speaking, the basic engines that are flying now can be increased by 4,000 pounds of thrust without any increase in noise level. This is a tremendous increase, and never before have we ever in our engine development found a substantial increase like that as an engine progressed through its improvement cycle.

Since it has greater power at no greater noise level, it will permit the aircraft to take off to get higher above the community, and that is one of the best noise reduction methods we have, and the way the turbofan engine actually will cause less noise is by getting higher, because of its greater power. Its noise level is about the same measured at the same distance. However, it does have one phenomena that must be carefully watched, and that is it reduces the exhaust gas noise. In doing that, the compressor whine then begins to abtrude and the compressor whine we found to be a source of much of our complaint.

In addition to the compressor whine, added to it is the fan whine of the turbofan itself. So that we have the double problem of a higher compressor whine level and a lower exhaust noise level, which has tended to mask it, and the lower level of the exhaust noise is more tolerable than the compressor whine itself.

The manufacturers are hard at work on every conceivable means of cutting down the compressor whine, so that on the approach this airplane will not be a problem. They have a tough job ahead of themselves to do this, but they are mounting all-out efforts.

Now, unfortunately, the high-frequency sounds that come from the compressor and from the fan are adaptable to acoustical trickery, as it were, to cut it down. One is a discreet frequency; and two, being highly directional, you can play around with it more; and three, as compared with the exhaust gas noise, it is cold and it is not hot and it is at a lower velocity, so that you can play with it more than with the exhaust gas.

We have hopes that because of the effort going into compressor whine research and fan whine suppression, that by the time these airplanes will come in that they will have made considerable improvement on the compressor whine.

I have just one last part that I would like to discuss. The emphasis has always been on takeoff being the noise problem. Landing aircraft of the piston engine variety has seldom caused serious complaints in the past. It was felt that this phenomena would exist also for the jet transport. This has not proved itself to be true in several of our major noise complaint areas.

It happens that on the approach the compressor whine of these large jet transports is quite a new shrieky alerting sound. Because of its just being different causes more severe reaction, and we found this past summer that approach and landing noise in two of our major areas proved to be a larger source of complaint than on takeoff.

This is disturbing because our analyses—and I will play tapes to show—indicate that it is the compressor whine, the whistle, which is not the loudest sound you hear on the landing that has caused the difficulty, and if the whistle is the problem and if the turbofan engine has a tendency perhaps to whistle a little more than the whistle on this engine, it must be very carefully watched, and it is for those reasons, and because FAA has been in constant touch with the jet engine manufacturers that they have mounted this very intensive effort to control the whine of these engines.

There is no question about it, on takeoff this engine on an airplane will cause less noise and less complaint than we are getting on our

present large turbojets. On the landing it is touch and go at the present time.

I want to play just two last tapes. First is a 707 typical approach. This happens to be at Friendship. I measured it just a couple of weeks ago. Then I have a piston engine airplane after it, a DC–7, on a typical approach, also at Friendship. The noise levels, interestingly enough, the jet happens to be the quieter on this particular landing measured on a decibel meter, but let's see what our human reaction is to it.

The 707 jet on approach. I am going to play that again for any of you who might have missed it.

The DC–7.

You might have noticed the relative difference between the two. This airplane was 2 decibels louder.

I am now going to play this tape once again of the 707. We are going to assume that this is the person on the ground here. He is an irate citizen, so he is measuring it, and the airplane is coming in from the approach over here. I want you to notice how the whistle is very noticeable until the airplane is almost directly overhead, and then let's say when it is 45 degrees looking up into it, you get the loudest part of the compressor whine, the whistle, and then, overhead, the whistle will almost abruptly cut off and be about 85 decibels, and after the airplane has passed to this point, when you are looking 30 degrees into its cone, you will get the exhaust noise which is 10 decibels louder, but, because of its lower frequency, about 1,200 cycles per second, we feel it causes less irritation than the whine itself, and so therefore we feel that the whine is something that must be very carefully watched in future engines.

The 707 jet on approach. The airplane is about 2 miles out at this point. The whistle comes out ahead, of course.

The results of our studies such as these where we found that the compressor whine is the real culprit in noisemaking that has led us to go to the manufatcurers at the earliest point that we learned this to alert them on the problem of the compressor and fan whine of the turbofan engine, so that they can, before these engines go into service, put fixes on the question of the whistle from this aircraft or this engine on the approach.

I would just like to close with some random thoughts, if I may. The picture is not all black. Here is the Lockheed Electra, which we will be seeing a great deal of and are seeing now. This airplane, both on takeoff and landing, causes less noise than the airplane it is replacing or airplanes it is replacing. So we have at least some hope as far as our turboprops are concerned.

Also, the F–27 airplane is causing less noise than the airplane it is replacing.

The jet noise problem is not solely a jet noise problem. It is a question of a composite picture of piston engine and jet engine noise that is causing the problem we have today. The jet being the new type of noise and the different noise, as it would be expected to be, is creating a greater furor. In some cases it is even louder as well, but we must not lose sight of the fact that the piston engine exposures on a repeated basis over a community adds to the overall irritation of a community to aircraft noise. So that both piston engine and jet aircraft noise must be carefully looked at.

In fact, at La Guardia last summer, the worst complaints that we received, and yet this was all piston engine or turboprop aircraft operations. Jets did not fly into La Guardia at all.

If our noise levels were to remain the same, and we stayed with just piston engine airplanes and didn't enjoy the benefits of jet transportation, the increasing traffic of piston engine airplanes at the same noise level will cause increasing complaints because the noise level times the number of exposures equals community complaint. So that if our jets had not come along we probably would be here like this studying just piston engine noise.

Mr. DEROUNIAN. Mr. Spano, then of the three jet engines, you say this 880 will be the quietest taking off, but you don't know about landing.

Mr. SPANO. Let me evaluate it this way. The Convair 880 is a smaller airplane, which will be generally in less than across-the-continent, nonstop operations. When it is operating at these short distances for which it was designed, it could cause somewhat less noise, but by the same token the large jet transport, when it operates from, say, New York to Miami, because of its less gross weight, can climb higher over the community and also cause less noise.

Mr. DEROUNIAN. So there is really no improvement then in the noise with this new engine?

Mr. SPANO. I am sorry. There are two Convair airplanes. The Convair 880, which is this one, will use a straight jet engine. The CJ–805, and then there is a Convair 600, which we will be showing in early 1961, which has the turbofan engine. By the same token, the Douglas and Boeing will also have turbofan versions, and these will all have marked decrease in noise on takeoff, so that the improvement is an all American aircraft.

One last thought: If the approach noise, or the real problem of communities and noise is in the approach, and if the whistle is the real source of the trouble, which is very high frequency, then we will have the phenomena that when windows are closed noises inside homes will be very greatly reduced as much as 30 to 35 decibels by a compressor because of its very high frequency.

This means then that there is a much sharper seasonal change in noise levels inside the home between summer and winter, when you do have those seasons with jet engines.

Mr. DEROUNIAN. Thank you very much.

Mr. HARRIS. What if everybody put air conditioning units in their houses and closed them up, that would make a difference, wouldn't it?

Mr. SPANO. Yes, sir, it would make a substantial difference against the jets, even more so than against the piston aircraft, for this reason: When you air condition, you close the windows. When you close the windows, the high frequencies of the jets are cut down much more so than a piston engine noise would be cut down, but there is another interesting element there. The air conditioner makes a noise of its own and the noise the air conditioner makes, being an airflow type of device, is roughly the same frequencies as the exhaust of a jet aircraft, so you have masking of the jet noise by the air conditioners.

Mr. FRIEDEL. Do you have any noise complaints from Friendship?

Mr. SPANO. I can't speak on that, but I will ask Mr. Thomas.

Mr. THOMAS. We have had very few. We have had two or three that I can recall.

Mr. Chairman, this completes the formal presentation of Mr. Spano unless there are questions, and then there is the balance of the statement. How do you desire to proceed?

Mr. WILLIAMS. Well, we more or less turned it over to you in the beginning, if that completes Mr. Spano's statement.

Mr. HARRIS. Mr. Chairman, I would like to ask Mr. Spano one question. Did you say these new turbofan engines are going to be available in 1961?

Mr. SPANO. Yes. I think that is early 1961. That is a rough approximation. They will be available in all three of our major transports, the Douglas, the Boeing, and the Convair.

Mr. HARRIS. And they will very likely, as they come out, replace the present engines in these planes?

Mr. SPANO. I think there is a general program in that direction on the part of several airlines already, and I think it probably will.

Mr. HARRIS. Do I understand correctly this type of suppression in the engine will help to reduce the noise on the takeoff, but as yet you don't think it will help too much on the landing?

Mr. SPANO. Yes.

Mr. HARRIS. Is that accurate?

Mr. SPANO. At this point. However, there is tremendous effort underway now to also make it or at least to improve its characteristics on landing and approach.

Mr. HARRIS. Thank you, sir.

Mr. WILLIAMS. Are there any further questions?

Thank you very much.

Mr. Thomas, let me ask you this. Mr. Spano has covered the research and development on the aircraft themselves. Now, as I understand it, the Agency has taken certain steps with respect to traffic patterns and other steps which were available to them. Did you plan to cover those this morning, also?

Mr. THOMAS. Yes, Mr. Chairman, the only thing, as you noted by Mr. Spano's presentation, the only really effective thing we can do now is to move the noise, while all this research and work is going on, on noise repression, and then we can, through traffic patterns, move it up or move it away, or through the flight path of the airplanes have some control on it. This is what we had intended to cover in the statement. Noticing the hour, we can file the statement, if you desire, and be available for questioning. I can continue with it or anything you desire. It was our intention to cover rules, traffic patterns, and the immediate program.

Mr. WILLIAMS. Is that covered to some extent in your statement, Mr. Thomas?

Mr. THOMAS. It is covered.

Mr. WILLIAMS. I think in view of the hour it would be well to let you file the statement and the statement will go in the record as if given in full.

Are there any questions of Mr. Thomas or the gentlemen from the FAA here?

Mr. HARRIS. Mr. Chairman, I want to emphasize one statement Mr. Thomas made here, for the benefit of everyone. I hope that it will be emphasized over and over again to show the optimism of the Agency, which obviously takes into consideration what Mr. Thomas knows about these new developments. That statement is on page 5, where in discussing the long-range approach to the problem, Mr. Thomas says:

> Quieter engines must and will be produced as soon as knowledge of various noise-producing factors permit advancement in this field.

That to me is quite imperative, Mr. Thomas, because I know this comes from not only the action which you have taken and the experience resulting therefrom, but obviously from such information as we have had presented here today, and your contacts and association with the industry.

Mr. WILLIAMS. Mr. Thomas, may I ask one question? To what extent are the military and other agencies of the Government cooperating in the carrying out of this research?

Mr. THOMAS. A great deal, sir. I think I will have to refer back to Mr. Spano. My recollection has been something over $50 million now involved in this resarch. Most of it has been NASA and military likewise have engaged in quite a good deal of it. However, the military have one difference. They need all the power that they can get for maximum performance and in many cases they have the zoning or the easements around their fields, and there seems to be quite a different attitude on noise that military aircraft make than noise that civil aircraft make as far as the general public is concerned.

Mr. WILLIAMS. One further question and I am through: Have you encountered any actual difficulty with respect to these noises having an adverse physical effect on people; that, is causing mental disturbances and emotional disturbances on the part of people in these communities?

Mr. THOMAS. Mr. Chairman, I don't know that I can answer that one. This has been claimed. Some of the complaints do go into this. I don't know that we can answer this very definitively.

Mr. WILLIAMS. Has it ever been definitely established in any case?

Mr. THOMAS. As a matter of courts or any proceedings? I don't know of any. I would like to ask Mr. Howard.

Mr. HOWARD. Mr. Chairman, we have had no court proceedings that would reveal this.

Mr. WILLIAMS. Have you ever had any medical information given to you that would indicate it?

Mr. HOWARD. Not in any specific case, no. This is not to say that there may not be some. It just has not been focused in any even case.

Mr. THOMAS. This has certainly been claimed though.

Mr. WILLIAMS. Nothing definite has been established on that, though?

Mr. THOMAS. No, sir; because this, as I understand, is a very difficult thing to establish because we deal with nervous conditions in quite a few instances. It is difficult to establish.

Mr. WILLIAMS. Mr. Thomas, on behalf of the committee permit me to express our appreciation to you and Mr. Spano, and these other gentlemen for their informative session this morning. I also wish to

compliment you and your section on the tremendous amount of work that you are doing in this field. We all hope that as you do that, of course, it will produce the desired results.

(Mr. Thomas' statement is as follows:)

STATEMENT OF DAVID D. THOMAS, DIRECTOR OF THE BUREAU OF AIR TRAFFIC MANAGEMENT, FEDERAL AVIATION AGENCY

As you can see from the results of the studies made by the FAA, the noise created by aircraft, particularly those of the turbojet transport category, is recognized as a serious problem and of great concern to the general public, airport operators, jet aircraft operators, jet pilots, and this Agency.

At the outset, we should like to make it clear that there is no quick and complete solution to this problem possible in the immediate future. However, there are many small actions that we, the aviation industry, and the local communities can take which, in the aggregate, will bring steady improvement, if not solutions.

Fundamentally, the most effective noise abatement program now available to us is the rearrangement of traffic patterns and the establishment of preferential runways to the extent possible to provide approach and departure courses over water areas or the least populated areas of communities. We are also concerned with the operating techniques of aircraft and are developing standards outlining optimum performance charcteristics of jet aircraft on takeoff and landing.

We have established a comprehensive program to minimize noise factors inherent in aircraft flight. This program includes actions to:

1. Review airport traffic patterns to make certain that they are most responsive to noise abatement.
2. Explore and implement, where feasible, maximum use of those runways which will permit special arrival and departure routes over the least populated areas.
3. Relocate or establish approach aids where present navigational systems are not compatible with noise abatement programs.

The Administrator recognizes that the public whom we serve includes the many millions who stay on the ground and merely wish protection from aircraft, as well as those who manufacture, operate, and use aircraft and are otherwise employed in the aviation industry. As your committee knows, the new Federal Aviation Act replaced the Civil Aeronautics Act of 1938 and now provides authority to us for issuance of air traffic rules both for the safety of aircraft and for the protection of persons and property on the ground. The protection contemplated includes, of course, normal considerations of air safety as well as noise. Often the best traffic patterns or preferential runways present very difficult problems of rearranging closely related air traffic patterns, particularly where several different airports are near each other.

The difficulty in determining the best public interest became apparent when we proposed a special civil air regulation to establish special airport traffic pattern rules for the Los Angeles International Airport. These rules were proposed in order to enhance the safety of aircraft operations in the Los Angeles area and to provide for the protection of persons and property on the ground.

As might be expected, the comments received on our proposals could be divided into two broad categories. One category of comment came from the aviation interests and concerned themselves principally with the technical aspects of the proposed rules, and the other category of comments came from persons who wished protection from the aircraft and were not particularly concerned with the technical aspects so long as jet flying was stopped, diminished, or made quieter.

It also became apparent that some of the suggestions received for reducing jet noise would have the effect of introducing unsafe operations into air commerce as, for example, excessive downwind operations, or would have the effect of stifling air commerce as, for example, closing all operations between certain night hours.

Our paramount consideration in determining how far we can go in enforcing the use of certain runways under varying wind, weather, and runway conditions in the interest of noise reduction must be the safety of aircraft and the flying public to insure the safety of persons and property on the ground. Stated another way, this means that we cannot apply noise abatement rules in

such a fashion that the rules increase the hazard during takeoff or landing so that our own rules might contribute to a crash. Our first responsibility is to insure that in the rush and pressure to find a quick solution, we do not make the tragic mistake of adopting rules that would to any degree reduce a pilot's ability to operate his aircraft with complete safety. In fact, during the recent Senate hearings before the Subcommittee on Aviation of the Committee on Interstate and Foreign Commerce, we were admonished not to compromise safety to accommodate the noise abatement problem.

At best, our immediate efforts are directed toward keeping noise at acceptable levels through revised procedures and approach and departure patterns while we are attempting to find other methods of reducing noise. The other methods involve long-term efforts in the development of turbofan engines, more efficient engine noise suppressors, better airports, and adequate local zoning laws and other actions to restrict residential construction on approach and departure paths.

All jet transport aircraft for civil operation are equipped with engine noise suppressors, which are heavy and costly, and meet certain noise limitations in accordance with contract specifications. We know that, notwithstanding the millions of dollars that have been invested in this effort by both the Government and private industry, work must continue on jet noise suppression to minimize the noise at its source. Quieter engines must and will be produced as soon as knowledge of various noise-producing factors permit advancement in this field. Ground engine mufflers, blast fences, and other devices also offer some hope for reducing the noise of jet engine runup and maintenance procedures employed at airports. In addition, a new family of engines—the turbofan engines—offer more hope of noise relief than present types.

Minor improvements may be made in operating techniques to obtain the least noisy methods for takeoff and approach to landing of civil jet transport aircraft. Better air speed indicators, artificial horizon and angle of attack indicators, with improved accuracy and readability, are necessary to permit jet equipment to be flown to the optimum performance consistent with safety and noise abatement. We are working in those areas.

Air carrier training activities have been reduced at many airports, both in volume and in hours of operation, to make it quieter for the airport neighbors.

We have and will continue to add additional navigation aids for instrument approaches to major airport terminals so that approaches during limited weather conditions may be made from more than one direction to eliminate the necessity of circling at low altitudes. In addition, we are developing visual glide path indicators to provide more accurate visual guidance in the landing approach, so that the aircraft will not be flown at an altitude lower than that deemed acceptable throughout the approach.

Notwithstanding all of these actions by the Federal Aviation Agency, airport operators, and the aviation industry, we are going to have noise complaints as long as residential areas are allowed to be developed in runway approach zones. In this connection, the report of the President's Airport Commission, known as the Doolittle report, and the report of the President's Assistant for Aviation Facilities Planning, known as the Curtis report, are in complete agreement in recommending that areas within airport approach zones be zoned for other than residential building as a protection from noise and hazard to people on the ground. The scope of airport master plans must be expanded to include buffer zones, designed to cushion the effects of aircraft noise. We need the help of airport and local authorities in the utilization of local zoning powers to encourage land uses of areas contiguous to airports in a manner mutually beneficial to the community and airport activities. Without this assistance from the local authorities, we will continue to be faced with the paradoxical situation in which residential properties are developed within approach zones and complaints against aircraft noise pour in from the residents of those developments as soon as they are occupied. Frequently, we are disturbed to learn of the huge new housing projects near the end of runways at major airports. You may remember when the committee visited Idlewild last Labor Day that we saw many new buildings going up near Idlewild, and particularly the huge development only 1½ miles from the end of the northwest runway.

In summary, the FAA is very much aware of the noise problem and is taking all practical measures within its authority to cope with this problem short of interfering with safety of operations or stifling air commerce. The Administrator

has on a number of occasions expressed the basic premise that the ultimate solution of the aircraft noise problem must include a full understanding of the need for cooperation by all segments of the aviation industry, airport operators, local communities, and the Federal Government. The FAA pledges itself to the fullest cooperation with all interested persons in attempting to achieve a solution to this problem.

Thank you.

Mr. WILLIAMS. If there are no further questions, the committee will stand adjourned.

(Whereupon, at 12:05 p.m., the subcommittee adjourned.)

AIRCRAFT NOISE PROBLEMS

WEDNESDAY, APRIL 20, 1960

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TRANSPORTATION AND AERONAUTICS OF
THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
San Francisco, Calif.

The subcommittee met, pursuant to notice, at 9 a.m., Hilton Inn, San Francisco International Airport, San Francisco, Calif., Hon. Morgan M. Moulder (chairman of the subcommittee) presiding.

Mr. MOULDER. The committee will be in order. Before we begin the hearings let me introduce ourselves. I am Morgan Moulder, of Missouri, a member of the Subcommittee on Transportation and Aeronautics; and with me are Congressman Derounian, of New York, on my left, also a member of the Subcommittee on Transportation and Aeronautics. And Congressman Brock, of Nebraska, sitting on my right, is a member of the Subcommittee on Health and Safety. Along with your distinguished Representative, Congressman Younger, we are all members of the Committee on Interstate and Foreign Commerce which has a long range of subjects vital to the welfare of our Nation, and one of those important subjects is civil aviation.

The Subcommittee on Transportation and Aeronautics is meeting here in San Francisco today to continue our study of the aircraft noise problem. We have held hearings in different sections of the United States on this problem. Here in San Francisco, which is one of the great ports of the world, I need not dwell on the importance of transportation in the jet age of today. Throughout history progress has followed the development of transportation, first on land and then on water and now in the air. It is the lifeline of all commerce and without a sound well-developed and adequate transportation system no nation can hope to compete and prosper in the modern world. In fact, without adequate transportation no nation can even defend itself.

The Committee on Interstate and Foreign Commerce has great responsibility over legislation affecting transportation, as well as other matters of vital importance to the welfare of the Nation. We have legislative jurisdiction over railroads, trucks, buses, civil aviation, inland waterways, oil and gas, the Federal Trade Commission, the Food and Drug Administration, public health, railroad retirement, radio and television, Federal power, the Securities and Exchange Commission, the Weather Bureau, newsprint, and trading with the enemy, and other important subjects affecting the welfare of the people of our great Nation. Certainly not the least is civil aviation. We not only have a duty to the 145,000 people who ride the airlines daily as passengers, but to the general public. For many years the committee has

been engaged in the study of aircraft noise problems which have been considerable in the vicinity of our Nation's major airports.

In writing the Federal Aviation Act of 1958, Congress expressly gave the new Federal Aviation Agency authority to make regulations "for the protection of persons and property on the ground," a broad extension of the rulemaking authority which had been granted to the Civil Aeronautics Board by the Civil Aeronautics Act of 1938.

Now, during the present Congress, this committee has continued its study of aircraft noise problems in meetings with representatives of the Federal Aviation Agency, representatives of the industry, and also heard many public witnesses.

The aircraft manufacturing industry and the airlines have been working on this for many years and have spent millions to alleviate aircraft noise. Our cities likewise have spent vast sums to develop and redesign airports to speed up traffic and improve safety.

We are here to find out more about the local problem. We want to know what can be done about it, and what is being done about it. We are here to hear your suggestions and hear the witnesses that will appear before the committee.

Mr. Harris of Arkansas is chairman of the Committee on Interstate and Foreign Commerce which I related to you is one of the most important committees in Congress. John Bell Williams, of Mississippi, is the chairman of this subcommittee. Neither of them could be present today. I, being the next in rank in seniority, am acting as subcommittee chairman. Mr. Younger is also a ranking member on this Committee on Interstate and Foreign Commerce.

In addition to our presence today, a number of people are here from Washington and from the regional area: Mr. D. D. Thomas, Director of the Bureau of Air Traffic Management, Federal Aviation Agency, Washington, D.C.; Mr. Carl Hand, regional engineer, Federal Aviation Agency, Oakland, Calif.; Gen. P. T. Preuss, Assistant Administrator for Plans and Requirements, FAA; Col. B. E. McKenzie, Assistant to the Director, Bureau of Air Traffic Management, FAA; Col. Martin Menter, Office of General Counsel, FAA; Mr. R. E. Williams, congressional liaison officer; Gen. Jack R. Crary, president, National Aircraft Noise Abatement Council, Washington, D.C.

We want you to know that we are deeply interested in this problem here and want to try to help solve it, and we are out here for that purpose, to give our assistance in this problem.

In conducting the hearings, we hope to proceed in an orderly and dignified manner. After we have called upon a number of persons whom we have here on our list, then we will hear each and every one of you who have comments, remarks, and recommendations to make.

Are you ready to proceed, gentlemen?

The first witness is Mayor Webb Witmer, who is the mayor of the city of Millbrae.

STATEMENT OF HON. WEBB WITMER, FORMER MAYOR OF THE CITY OF MILLBRAE, CALIF.

Mayor WITMER. Congressman Moulder, Chairman; Congressman Brock, Congressman Derounian, and our own Congressman Younger, I am here this morning representing the city of Millbrae and its citizens. I am the IPM (the immediate past mayor) of our city. Our

new mayor, Mr. Marvin M. Church, and our new vice mayor, Mrs. Josephine Waugh, who took office officially just last night, are in attendance at this hearing, also, as well as a past mayor, W. W. Morgan, who has just been elected to another 4-year term as councilman. However, because Mayor Church has been out of the country on business for approximately a month, and because of the fact that I, as the former mayor, had the responsibility of the early negotiations with San Francisco International Airport authorities regarding Millbrae's problems with jet noise, vibration, and smoke, the mayor with the approval of the council, last night requested that I officially represent the city at this session this morning.

It is with real humility that I make this presentation before your honored body, for the simple reason that the city had hired and had expected the services of an expert from the field of airport noises to make our formal presentation. However, the position in which I find myself at this time reminds me of a story I heard recently concerning three drunks who were observed by the stationmaster on the platform at a railroad station. They appeared to be quite well embroiled with alcohol and the stationmaster was afraid that they would injure themselves, so kept an eagle eye on them. They staggered about the platform for a while until a train arrived. He became even more concerned when he noticed that they did not get on the train. He approached the three drunks just as the train started to pull out of the station. And as the train started to pull out the three inebriates started to run for it. The stationmaster grabbed hold of the first drunk and was able to boost him onto the observation platform of the train. And, despite the fact that the speed of the train was increasing, he managed to hoist the second drunk aboard, too. By the time he was able to get his arms around the third drunk, the train had attained such speed that he was unable to get this one aboard. So with his arms around the third drunk he remarked to the fellow: "I'll bet your friends will surely be surprised when they find out you're not on the train." To which the third drunk responded: "You can shay that again, friend, 'cause those guys came down to see me off."

Now, I find myself in the position of the third drunk left on the platform. I was to have been here merely to introduce those who were to participate in this presentation. At 2:30 yesterday afternoon I received a phone call from our technical expert, Mr. Antone C. Pietrasanta, of the firm of Bolt, Beranek & Newman, Inc., stating that he had been advised by the home office of his firm, located in Cambridge, Mass., that he had been asked to withdraw his services from the city of Millbrae for this congressional subcommittee hearing. A wire from Los Angeles, the Pacific coast headquarters of this sound engineering firm, timed at 6:27 last night, was received at my home at around 8 o'clock last night and was delivered to me at the council meeting by my daughter. The wire stated, and I quote:

We are indeed sorry that we are unable to assist in presenting the case of Millbrae before the special U.S. congressional subcommittee. The extrapolation from past experience and the prediction of any given communities reaction to noise are complex operations involving subjective judgments. Therefore, in the light of our present client commitments the question of bias could not fail to arise in the committee's minds regardless of the nature of our testimony.

In none of our activities can we ever let ourselves be placed in the unethical position of serving two groups whose interests may be conflicting. We hope you will appreciate our position and will accept our sincere regrets.

LEO L. BERANEK,
President, Bolt, Beranek & Newman, Inc.

The receipt of this information was devastating to me, as well as to our council and our citizens who had received a letter on April 5, just 15 days ago from Dr. William J. Galloway, the manager of this firm's west coast office in Los Angeles which read as follows:

In accordance with our discussion last week we are arranging for a member of the staff of Bolt, Beranek & Newman, Inc., to meet with you and any other people whom you may select to consider noise problems in the city of Millbrae resulting from jet aircraft operations at San Francisco International Airport. Mr. A. C. Pietrasanta will arrive at the San Francisco Airport on WAL flight 608 at 9:40 a.m. on Thursday, April 7.

Mr. Pietrasanta is extremely well qualified to work with you on problems of aircraft noise and its relation to the community. He has been engaged in this specific activity with our firm for more than 8 years. During this time he has been responsible for a large scale, continuing program studying problems of aircraft noise for the Air Force and the Navy. He has also been intimately connected with our work on noise problems at commercial airports, including New York International Airport and Los Angeles International Airport. During the course of this work he has prepared more than 20 articles for publication in technical journals and has authored or supervised the preparation of more than 60 technical reports. Mr. Pietrasanta is a Fellow of the Acoustical Society of America and is also the chairman of the society's technical committee on noise.

We appreciate the opportunity of working with you in an effort to ameliorate the effects of jet noise on the city of Millbrae.

So I am sure that your committee should well understand how myself and the other three humble residents of our city who will make presentations to you in just a few moments must have felt last night--the man who should have been on the train was truly left on the station platform.

However, in discussing this dramatic turn of events, with the members of our city council, as well as with the members of our jet noise committee, it seemed to be the consensus of opinion that perhaps this decision upon the part of the firm of Bolt, Beranek & Newman, Inc., has resulted in a service to the city of Millbrae, rather than a disservice. Actually, their reticence in wishing to testify before this subcommittee, must actually accentuate the fact that there is a problem of noise in relation to the city of Millbrae and the San Francisco International Airport—a problem of such magnitude and seriousness that, because of their commitments with other airports, they do not wish to become involved.

And after all it is this problem—the problem of noise and vibration and smoke brought upon our community by the introduction of commercial jet airliners on runway 1–R of the San Francisco International Airport which has caused our city and our citizens to seek surcease from your most honorable body.

Before introducing three of our residents who have been selected as spokesmen for several hundred of our citizens who will detail in great degree the magnitude of these problems, I feel that it is only appropriate that this congressional subcommittee be appraised of some of the background efforts of our city, through negotiations with the San Francisco International Airport authorities, and the frustrations and

hallucinations resulting from these attempted negotiations, which have made it necessary to place our appeal directly before you.

First, let it be stated that the problem of noise and vibration and smoke from the commercial jet airliners is, to our citizens and our city, an acute and serious problem. It is a problem with which we have lived since November 15 of 1959, 5 whole months. On that date the San Francisco International Airport began operating all jet flights from the airport on runway 1–R, the launching pad of which lies within 700 feet of the homes of Millbrae. This operation began as soon as the airport extended the length of runway 1–R to accommodate jet planes. And even as of this moment, this runway is considered minimal runway for jet operations. A portion of this runway which was extended lies within the corporate limits of our city, a fact of which we were unaware until after the operations began. At no time, in planning the construction and extension of runway 1–R did the city and county of San Francisco, the operators of the San Francisco International Airport ever consult our city as to its plans.

Previous to November 15, 1959, every jet flight from the airport used runway 28, which is the long east-west runway, taking advantage of the prevailing winds which the U.S. Weather Bureau's "Wind Rose" shows blows 25 percent of the time during the 24 hours of the day, 7 days a week, 365 days of the year. But on November 15, Millbrae's residents awakened to the blast, roar, and smoke of the jet invasion. For the next 2 or 3 weeks every jet flight from the San Francisco International Airport, regardless of the prevailing winds were launched from runway 1–R. In answer to frenzied inquiries of city officials and citizenry, airport officials reported that this runway was being used while repairs were completed, and up until about March 20 at least 75 percent of all jet takeoffs, still regardless of prevailing winds, were launched from runway 1–R.

On March 15 there appeared before the city council of our city, in our council chambers, more than a hundred men, women, and children, not only from the Bayside Manor area of our city, the area closest to runway 1–R and thus most greatly affected, but from other areas of the city, as well as citizens of neighboring communities. For well over an hour and a half our council listened to the pleas of these people for the council to seek relief for them from this problem.

As a result of this public meeting, Mr. Robert R. Thompson, city attorney for the city of Millbrae, after meeting with a special committee to study the jet noise problem, dispatched a letter to Mr. Belford Brown, manager of the San Francisco International Airport. A copy of this letter is submitted as a part of this report, as exhibit A.

It was not until after this letter from the Millbrae city attorney had reached the San Francisco International Airport authorities that some degree of relief was forthcoming.

On April the 4th our city attorney received a letter from Mr. Robert C. Kirkwood, manager of utilities of the Public Utilities Commission of the City and County of San Francisco, operators of the San Francisco International Airport, in which Mr. Kirkwood stated, and I quote:

There is currently taking place a complete review of the status of jet operations at San Francisco International Airport. In connection with your letter, meetings have been held among the departments of the city and county of San

Francisco and airline's representatives in order to seek out a possible solution to the questions which you have raised concerning reports of effects of jet operations on nearby residences.

Mr. Kirkwood's letter went on to state:

The airlines involved are now considering physical solutions for the handling of the jet traffic on runway 1–R. * * * In order to expedite the alleviation of this problem, I have directed that detailed studies be made in cooperation with the airlines affected, to arrive at a plan of action whereby, at the earliest possible date, the airport may institute modifications in airline operations that will relieve the present problem. To this end, it is the desire of the city and county of San Francisco that close cooperation between it and the city of Millbrae continue, in order that all efforts may be devoted to a speedy resolution of this problem for the mutual benefit of all concerned.

As late as last Friday, April 15, in response to Mr. Kirkwood's letter, our city attorney wrote and again I quote:

I have discussed the contents of your letter with the city council and they would very much like to have their representatives, including several members of the council and several members of the citizen's noise committee, meet with those of your people who are responsible for conducting the program outlined in your letter for the purpose of obtaining an up-to-date status report with respect to progress in the areas mentioned in your letter. Mayor Webb Witmer suggested that a convenient time for such a meeting might be the evening of either Tuesday, April 26, or Wednesday, April 27. This would be an informal meeting and, perhaps, could be most conveniently held at some room or office at the airport. I would appreciate your advising if such a meeting could be held. Inasmuch as I will be absent from the city next week, I would like to have you respond to this letter directly to the mayor of Millbrae, Webb L. Witmer, City Hall, Millbrae, Calif., with a copy of your letter to this office.

Now, as I mentioned earlier, it was not until after the receipt of our city attorney's letter to Mr. Belford Brown, manager of the airport, in which he asked among other things for a 90-day moratorium on the use of runway 1–R, that the San Francisco Airport officials gave our city and our residents even lipservice. In fact, it has become the belief of our city and its citizens that it is more than mere coincidence, the established fact that upon every occasion, when complete cooperation has been promised upon the part of airport officials, whenever any persons has endeavored to officially seek information by observing the jet operations from runway 1–R, not a single jet plane has taken off from this controversial runway, regardless of which direction the wind is blowing, or whether any wind is blowing at all. In fact, it was interesting, but assuredly not amusing, when Mr. Antone C. Pietrasanta, the expert whom we had hoped to have testify before the committee today, was in Millbrae on Thursday, April 7, arriving in the city at 9:45 a.m., practically every jet flight scheduled before his arrival time took off on runway 1–R, while every scheduled flight after his arrival took off on runway 28 up until the very jet flight on which he departed for Los Angeles at 9:45 that night, and that flight departed from runway 1–R. The members of your committee may have even experienced this same frustration during the course of your tour of the affected area yesterday evening.

Now, this, gentlemen, will then give you the background in as concise detail as possible the experience of our city and our citizens in living with this problem, or I should say, trying to exist with this problem for the past 5 months. At this time I would like to present and introduce three residents of our city who own homes in the Bayside Manor area, the area most directly affected by this problem.

However, I think it should be clearly understood that the jet noise study committee is composed of residents not only of the Bayside Manor area, but of other areas throughout the entire city as well, and this problem, while more acutely theirs, is most assuredly not confined to their area alone. First, I would like to present Mr. Joseph R. Bridgewater, president of the Bayside Manor Improvement Club and chairman of the Citizen's Jet Noise Committee, who after having outlined to the committee the personal damage to the homes in his area, will introduce two other residents of our community.

Mr. MOULDER. I want to say thank you very much, Mayor, for your very fine and interesting statement.

The committee will recess for a period of about 2 minutes.

(Short recess taken.)

STATEMENT OF JOSEPH BRIDGEWATER, PRESIDENT OF BAYSIDE MANOR IMPROVEMENT CLUB AND CHAIRMAN OF THE CITIZENS' JET NOISE COMMITTEE

Mr. MOULDER. Mr. Bridgewater, you may proceed.

Mr. BRIDGEWATER. Distinguished Congressmen, I am here to outline the physical property damage and the physical damage to the people that has resulted from the use of runway 1–R, and at this point I would like to make it very clear that while you are aware of noise problems throughout all of the major areas in the country that are so affected, our problem is not of noise alone. We have three problems in connection with the use of this runway. The noise, certainly, is a severe problem. There are also severe vibrations which are set up due to the extreme closeness of the end of this runway to our homes, and also there are extreme smoke problems.

Now, on the maps we have presented you with, one point we would like to bring out at this time is that our homes lie within 700 feet of the end of this runway. The terminal building itself, which is the hub of the airport activity, is approximately 4,700 feet, or roughly, 6½ times further away. This is just by way of illustration as to the closeness of our homes to the airport and to the end of this runway.

The loss of sleep and its consequences have resulted in our citizens, many being awakened in the middle of the night in this terrifying noise, has resulted in loss of efficiency to the people, general rundown condition, weakness, and susceptibility to disease and all its ramifications and physical disorders. There have been abnormally large incidences of severe headaches. These result from the planes taxiing out to the takeoff preparation area. This whistling that occurs is quite similar to that of an artillery shell or buzz bomb of World War II. Then there is the terrifying shock of the explosion which is when the planes start their initial takeoff. There have been a great number of complaints of temporary loss of hearing and of earaches not only from adults but from children. Medical problems have been encountered. Many citizens have had to seek medical relief; many are under doctor's care.

At this point, I would like to mention the fact that we have over 70 signed statements from the people. These statements were taken in the normal course of our activities. This was well before there was any knowledge of a congressional hearing to be held in this matter.

We have prepared copies of some of them selected at random, and they will be passed out to you gentlemen if you so desire to have them for your records.

The embarrassment that is caused by this when people are trying to entertain at their homes: People's friends come into the area and sit there, and all of a sudden one of these takeoffs start. The expressions that have been given by other people from outside areas really are hard to elaborate at this time.

And I would like to make it clear right now that if we seem a little nervous or a little emotional—we are very emotional over this problem—we, quite frankly, have never got up before a congressional hearing. This is something entirely new to us. It is so serious that we are trying to honestly and forthrightly outline the problems that have resulted.

The loss of enjoyment of one's outdoors: The patio areas cannot be enjoyed any more for many reasons. The severe noise and the severe smoke that continually comes over, and in connection with that, the effects of the soot. When more than one of these planes take off at a time you can stand in front of your house or anywhere on the outside and you can smell kerosene in the air. This, I would imagine, sounds hard to believe, but unless you have personally lived this, or unless you have personally experienced it, you cannot fully appreciate what is happening. There has been a great deal of property damage that has been done. Dick Carpenter will outline that further, and Mrs. John Kane will go on to tell the effects on the housewives.

The vibrations that have been set up have done damage to gas-fired appliances. People live in fear, utter fear, of having a gas explosion, or suffocation from a gas heater or appliance. When we have our appliances serviced they have definitely found cracks and leaks that have never occurred before in these homes. And these homes, as I say, are not new. They have been there for some years.

The inability to study or to read when this happens, or to take a few things home from the office and finish working on them: I am sure you gentlemen many times like to go home at night in the quiet of your own home and sit back and finish something you were unable to finish during the day and catch up on something. This you just can't do.

And these flights being random, they do switch them from time to time, and they are of such a random nature that you really don't expect it, and it is initially not the type of thing that can ever be gotten used to because of the intensity of the noise and vibrations. To wake up in the middle of the night as though there were a severe earthquake—and in these signed statements many people have stated that they wake up in a cold sweat. The effect on their nervous system is that of impending disaster. I am sure that at some point in all you gentlemen's lives you have had an experience, maybe a close call in an automobile incident, or you just felt your heart beating at twice its normal rate or at a very rapid rate. These effects take place in our area whenever runway 1–R is used. It isn't something that comes and goes. It happens whenever that runway is used. And the people down there have suffered, as I say, severe property damage, and they have been very hesitant to repair it. Such statements as "what's the use, it's just going to happen again," and just a complete feeling

of utter frustration. If you gentlemen ever experienced such a feeling in your life you will have some idea of just what the people of our area are going through.

At this time I would like to introduce Mr. Richard Carpenter who will speak on the property damage that has resulted from the use of this runway.

Mr. MOULDER. Thank you very much, Mr. Bridgewater, and we don't want any of you to feel ill at ease or emotional coming before this committee, because we are all citizens, just like yourselves, interested in the same problem, representing our respective districts and the people of the United States in Congress, so you are our bosses. Don't feel ill at ease. Who is your next witness?

Mr. BRIDGEWATER. Mr. Richard Carpenter.

STATEMENT OF RICHARD CARPENTER

Mr. CARPENTER. I, too, am a resident of the Bayside Manor and the city of Millbrae, and we are here to represent not only our area but the entire portion which is—the largest portion, in fact, the majority of Millbrae—which is affected by this jet noise problem. We sincerely appreciate your attention today in coming here to hear us, and we find that we can only achieve relief from the jet noise from runway 1–R under three conditions: If the wind is 50 miles an hour, or if we have people who are threatening or going out to measure the noise level, or if there is a congressional committee in appearance. This is very much like having the United Nations observers in the Gaza strip area. I would like you to stay with us. [Laughter.]

As far as this area being encroached upon, the present terminal building was built in 1950 or 1952, somewhere in there. The present terminal building was approximately a mile north in that direction away from us. The terminal building before that was approximately a mile north from that building, so 2 miles north from the present building. The runways have continually been built up in our area. Now, our homes were built in 1942, 1943, 1944, and 1945, during the war years, and at that time runway 1–R, as it presently exists, was half a mile to three-quarters of a mile away from us. So it isn't we who have encroached upon the airport; it is the airport that has encroached upon us.

Mr. MOULDER. Now, you bring up an interesting point there. You say the majority of the homes were built before the development of the airport?

Mr. CARPENTER. Yes, this particular area. We have been accused of not belonging where we are. We have been told by the representative of the airport, Mr. Wiley, that it is unfortunate we are here where we are. I would like to remind you that we were here first, and it was they who encroached upon us.

Now, since the destruction to our personal lives and property has started from runway 1–R, neither the city of San Francisco nor the San Francisco Airport authorities have taken any efforts at all and made no efforts at all to visit us to examine the damage. Mr. Wiley, who is their noise abatement center chairman, whom we believe to be a "people abatement chairman," did visit one home, and he took a few notes. I don't know what happened to those notes, probably as happens to many of our protests, went to file 13.

The jet aircraft coming up to runway 1–R and departing from that position have acted as invaders. They have invaded our homes just as much as if a house-wrecking crew had come up and began to physically shake the building, and the property damage that has resulted from this is severe. We have invited you, and we do invite you—if no one else has, I personally invite you to visit my house. I know Congressman Younger did yesterday. He visited 5 or 6 homes in the area, and this area contains 198 homes. We chose at random. Some of them were 1,500 or 1,600 feet away from the end of runway 1–R, but again, as Mr. Bridgewater says, this is about a third of the distance between the present terminal and the runway. We are closer to it within the airport, so to speak, much more than the terminal is.

Now, our homes have been subjected to propeller-driven craft for some time, and we have not complained about these except during the run period at night. This, of course, is very disturbing to sleep, but we were able to get along with propeller-driven aircraft. We have a railroad that causes some vibration, but I would like to tell you gentlemen we have residents from 1945 and so on up, and until the jet aircraft started operating in December of last year there were absolutely no incidents of cracks resulting from propeller-driven aircraft or the railroad. This has come about since December, since the jet aircraft started.

Now, in regard to it, I have divided this into two sections—interior and exterior. As far as the numerous cracks throughout the area in all 198 homes—I have not visited all of these; I have been in 125 of them personally where the people have cracks in their homes, walls, ceilings, moldings, and fireplaces. As to their fireplaces, part are settling. Mine has settled. It has settled 2 inches in the last 2 months. There are separations of the walls from the ceiling. I am sure if this vibration keeps up unabated, as it is, that we will have ceilings down on our floors soon. That is not an exaggeration.

In my own home, there are 53 nails that are quite visible—some of them far enough out so that if I were strong enough I could pull them out with my finger—thus weakening the support of the walls.

The molding between the ceilings and wall is cracked and coming apart. I haven't taken the linear measurements in my own home, but I would estimate of all the walls there is probably not more than 10 feet that isn't cracked and separated, in all, from the ceiling. Cabinets are separating from walls and ceilings also, and there have been numerous complaints that dishes have fallen from such cabinets. Plasterboard in the ceiling is sinking below the nails, too. The nails are remaining up, but the plasterboard is sinking beneath.

There is movement of gas-fired appliances. In my own home, our kitchen stove has moved as much as 3 or 4 inches several times, and we live in constant fear of gas leaks from this movement. This is also a general complaint of several others.

Soot and the greasy film from the jet exhaust coat our homes. Putty around kitchen sinks and bathtubs cracks, is replaced, cracks again, is replaced, and so on. There is an abnormally short life for TV tubes in our area due to the vibrations. The light bulbs seem to burn out or blow out sooner than normal. Objects fall from the walls and from the furniture, objects of art, objects of antiquity. The door and window molding is cracking and shifting. The windows

and doors stick now due to the shifting. There must be other interior damage that we have not seen. I have not elaborated all that has been reported here. These are the major complaints.

As far as the exterior damage goes, there have appeared, recently, many cracks in our stucco. Many of us have recently painted our homes and have caulked any cracks which were there which were relatively new. These cracks have reappeared, and newer and larger cracks have also appeared. The fireplace chimneys have cracked and broken and bricks loosened at the top.

Window breakage has occurred in several instances, and there has been a continual breakage and loosening of window putty. This has been cracked and replaced, and cracked and replaced again.

The house paint has been discolored and dirty. Some of our residents have to wash the houses with a house cleanser literally several times a month. The damage to cars parked out of doors is a common complaint. The exhaust attacks and diminishes the appearance of the cars.

There is a very great and real fear of property devaluation in general. Our people are very, very frustrated. They feel depressed. My family, when we go away, we hate to return to our homes because we are getting back into this area in which we feel our frustration. Many people would like to sell their homes and move if they could. There have been numerous residents who attempted, for months, to sell their homes. When anyone comes up to view the home and a jet aircraft takes off it is "bye bye" customer. There is no sale. We are stuck. It is not our problem; the airport has brought the problem to us. We are the common people. We do not have vast sums of money or political influence to fight our battles. We appeal to you, as citizens of the country, to protect our personal rights and liberties.

Mr. MOULDER. May I ask the members of the committee if they have any questions to ask you?

Mr. BROCK. I meant to ask it earlier. Could someone tell me the length of runway 1–R and the length of runway 28–R?

Mr. BELFORD BROWN. Runway 10L–28R, 9,500 feet; 10R–28L, 7,130 feet; 1R–19L, 9,000 feet; 1L–19R, 7,000 feet.

Mr. BROCK. Now, one other question, Mr. Chairman, of the witness. That is, what is the distance from runway 1–R to the freeway, Bayshore Freeway? I think it was mentioned by an earlier witness. He made reference of 700 feet. Is that about it?

Mr. CARPENTER. That is from the takeoff position to the nearest home.

Mr. MOULDER. Mr. Derounian, any questions? Mr. Younger?

Mr. YOUNGER. As I understand it the airport owns the property west of Bayshore and up to the border of your subdivision now?

Mr. CARPENTER. That is true. A portion of this lies within the city of Millbrae. But the city of Millbrae, evidently through the legislative action of the city of San Francisco, lacks the authority to require them to obtain building permits to construct in that area.

Mr. MOULDER. Will you introduce the other witness?

Mr. CARPENTER. The next witness is Mrs. John Kane.

Mr. MOULDER. Are you ready to proceed, Mrs. Kane?

STATEMENT OF MRS. JOHN KANE

Mrs. KANE. Yes. I will make it very brief because most of my points have been covered. Naturally, the housewife's first consideration is her children and her family.

We feel that Bayside Manor is a very poor environment for raising children, physically and psychologically, because each time one of these jets take off, children either run in from play frightened, or they wake up at night, waking up the whole family, lowering resistance and bringing on illness.

Now, one of our biggest problems, we find, is laundry hanging outside. I, myself, had to buy a dryer because of this problem, but when you hang a sheet out, smelling of fresh air, it comes in all yellow and smells horribly of kerosene and the jet exhaust smoke. The smoke on the furnishings and interior of the house is terrible, but you might as well not even clean it because 7 or 8 minutes later it is all over again. So we have been too disgusted to try to keep our houses clean or repair the jet damage or make improvements.

Living with this thing 24 hours a day is making us all living wrecks when you don't know what is going to happen next.

We can't enjoy our houses outside. On a normal Sunday afternoon when you want to go out and have a barbecue or take a sunbath we have to put up a sheet box or wear gas masks. It is really ridiculous on Sundays. The only way we can enjoy anything is go over on the coast or down to Belmont. If we want to entertain we can, but it is kind of hard to talk over the jet noise, hanging onto our seats whenever they take off. I think that is all I have. Any questions?

Mr. MOULDER. Mrs. Kane, that is a very fine statement. We appreciate your comments and the information you have given this committee. Any questions, Mr. Brock? Mr. Derounian and Mr. Younger, any questions?

Mayor Witmer.

STATEMENT OF HON. WEBB WITMER—Resumed

Mayor WITMER. It is almost safe to call me by that title because there is only one person on our council who has not served as mayor. I am not the mayor any longer but don't worry about calling me that. Mrs. Josephine Waugh, our present vice mayor will soon be able to answer to that request, I am sure.

Gentlemen, you have heard the comments of people who are being compelled to live with a problem which has been intolerable since its very beginning. These people are common, ordinary people, rational and sound. They were selected from among other residents of their area to be their representatives before your body, just as I was selected by our council to be the official spokesman for the city. The information they have presented is factual, borne out by photostatic copies of unsolicited letters from their neighbors which will be presented to your comimttee. By now it should be clear why we welcome the opportunity to present our grievances before you.

We have the feeling, and have had the feeling since the day the announcement was made that your visit was forthcoming, that you were not coming to San Francisco for just another congressional

junket. Rather, we have felt that your trip to the west coast was prompted by a sincere desire to learn more concerning this problem, as well as to offer your services in whatever way you may, to help solve it.

Mr. DEROUNIAN. May I say this committee never takes a "junket." [Laughter.]

Mayor WITMER. I am sure of that.

We, in the city of Millbrae, are aware, as we are certain you will become aware, that this problem was not the sole problem of the city of Millbrae alone. We know that our neighboring cities, both to the south, and to the north, adjacent to the airport, are also affected. We feel that, to a large degree, the measure in which your committee is able to help all of us in our problem in relation to the San Francisco International Airport, will be reflected in the manner in which you may also be able to solve similar problems in other communities throughout the Nation which happen to be placed in the unfortunate circumstances in many ways of being adjacent to airports.

In all fairness to our citizens, I think it only proper that I should state that there is no foundation for any criticism that has been leveled at us from some sources, indicating that we are trying to hinder progress—that we are endeavoring to stop jet operations at the San Francisco International Airport. As one of our citizens so aptly put it: "Progress does not have to embody torture," and I am sure from the testimony given by these three residents that what they have endured surely borders on "torture." Nor has the city, at any time, in its frustrating attempts to solve this problem ever suggested that we desire to stop jet operations from the San Francisco Airport.

What then is our city and our citizens asking of your committee?

First, we would appeal to your committee to consider and discuss with FAA officials our city attorney's request for a 90-day moratorium on the use of runway 1–R. Secondly, during this interim, we would suggest that your body consider requesting the Federal agencies having jurisdiction over the airport to demand that the city and county of San Francisco construct some type of a sound-containing barrier at the end of the runway 1–R, immediately adjacent to the city of Millbrae. One of the statements made by Mr. Pietrasanta, in speaking before our council and the Citizen's Jet Noise Committee was that an impervious wall could be designed which would reduce the noise level in the Bayside Manor area some 15 to 20 decibels, which could be sufficient to prove worthwhile despite the fact such barriers would be costly. It is my understanding that one of our neighboring cities to the north will present testimony by an expert, Dr. Maurice Garbell, and I am sure he will corroborate our contention that such barriers can be built and effectively reduce the noise. In comparison either to the cost of one jet airliner or to the rest of the airport's construction the cost of the most elaborate barrier which could be designed would be infinitesmal.

Thirdly, we would ask your committee to use its influence with the Federal agencies having jurisdiction over the airport to consider still further investigation of operational procedures and flight patterns with the end in mind of reducing the use of runway 1–R to an absolute minimum, even after such barriers have been erected.

Fourthly, we would invite support of your committee in recommending to the Congress that the research program being conducted by Federal agencies such as the FAA and NAAS be accelerated, and that consideration even be given to the granting of funds for research purposes to private aircraft manufacturers for developing suppressing equipment which will make the noise caused by jet engines as inoffensive to persons outside of jet aircraft as it now is to the passengers inside.

And finally, although we are not here to plead the cause of the city and county of San Francisco and the airport, and although we believe that the extension of runways which will take at least 1 to 2 years to complete will only partially help to solve the problem (because even as runways are extended the aircraft manufacturers have either under construction or in design more powerful and bigger jet engines which will require additional runway length for takeoffs) we would solicit your support in obtaining funds from the FAA for the extension of runways 28–R and 28–L.

In conclusion, on behalf of the citizens of the city of Millbrae, may I thank you gentlemen for the courtesy you have extended us in permitting us to present our problem before you in this manner. We sincerely trust that your visit in our area has been as pleasant as it will prove to be fruitful to our cause.

Mr. MOULDER. Thank you very much for your very fine statement.

The next group scheduled for appearance before the committee is representing the city of South San Francisco. The first person scheduled is Mr. Leo Ryan, vice mayor.

Whenever you are ready, Mr. Ryan.

STATEMENT OF LEO RYAN, VICE MAYOR, CITY OF SOUTH SAN FRANCISCO, CALIF.

Mr. RYAN. Mr. Chairman, members of the committee, and members of the audience, the problem in relation to the jet aircraft and noise in South San Francisco is an old one. Perhaps it is best to take a minute or two to go back to the beginning of the problem as we see it.

At this time, 3 years ago, in 1957, a group of citizens appeared before the city council to ask us if we were aware and if we knew of the plans for the use of jet aircraft here at the San Francisco International Airport. We said we were vaguely familiar with them because we had heard from the newspapers that the jet aircraft were beginning to arrive. One of the men who was the leader of the group was an engineer who was familiar with some of the technical trade journals that had been published up to that time in regard to the use of jet aircraft and the engineering specifications for the engines. He told us, warned us, that the noise from the jet aircraft would be serious. It would affect all the residents of South San Francisco, and that we should be more aware of what the problem was. At first, of course, we weren't prepared to take his word alone or testimony that the problem was serious. So we asked him to become chairman of the special committee to look into the matter and report back to the city council. He did. In June of that year, in June 1957, he reported back to the council with a very thorough report heavily laced with engineer talk which was difficult for us to understand, but at least we could see

that it was worth further study, so the council appointed me as chairman and asked me to get together a citizen's committee to look into the matter as fully as we could and find out what was the problem and what could be done about it. Having little experience with noise or aircraft at the time—I feel almost ready to fly those planes now, having moved in as far as I can—except knowing about the noise of aircraft over the city and except knowing that the propeller jobs used the gap regularly as an entrance and exit over the city——

Mr. MOULDER. I didn't understand you.

Mr. RYAN. We knew the propeller-driven aircraft used the gap, if you are familiar with the term.

Mr. MOULDER. No, I am not.

Mr. RYAN. The San Bruno Range runs east and west. The Coast Range runs north and south, and they come together at a point called the gap which is in the northwesterly part of South San Francisco. Because of the prevailing wind—there is almost a continuous wind that runs from northeast to southwest for 9 or 10 months of the year because of peculiar meteorological conditions—this is the main route off the airport for departing aircraft. Because of this we looked at the matter seriously because we knew it would affect the entire city of South San Francisco and its 40,000 residents and the neighboring city of San Bruno with its 5,000 residents.

Shortly after the committee got to work we realized we were in over our heads, and we needed some advice to make this investigation thorough. We needed to come up with some pluses. We needed to come up with some logical conclusions; that it is suggestions that matter, not just complaints. It is simply not enough to complain; you have to suggest the possible solution. The result of that committee's work—which lasted over 2 years of which this file here is simply my own personal file of letters, reports, correspondence that I have accumulated over a period of these 3 years—the result of this work was a publication of a report by Dr. Maurice Garbell who the city retained as a consultant in the matter who is a well-known aeronautical engineer whose predictions are almost biblical in their accuracy. I think it is a tribute to Dr. Garbell that many of the suggestions made in that report have been adopted by the airport. Some have not been adopted, and they are more serious, and they require a more serious expenditure of funds, and I think that is why you gentlemen are here, to extend and maintain this airport.

Mr. MOULDER. Would you like to submit it as part of the record?

It will be inserted in the record as part of your testimony, following your testimony.

Mr. RYAN. Fine. Thank you. Now, I'd like to call your attention again to the file which is concerned with jet complaints. The jets have not only interrupted the normal business of local government, a problem it did not create, and it has no problem to cure.

Mr. MOULDER. I assume the document you referred to is entitled "A Voluntary Noise Abatement Program at the San Francisco International Airport."

Mr. RYAN. Yes. Now, I'd like to also enter into the record for your use the statement of some of the school principals here in South San Francisco. I think this will illustrate the disruption of the class-

rooms and schools in South San Francisco, and I read at random. The first comes from the office of the superintendent:

To Whom It May Concern:

The problem of airplane disturbance has been a tremendous factor in this school district. At this very moment I have had to stop my dictation while a jet was passing over the administration building.

The effect of this disturbance, especially the jets, can be further illustrated by the following reports from the principals of this district given to me the week of April 18.

And I might add here, Mr. Chairman, because of the rapidity with which this hearing was put together it was impossible for us to enter and obtain all the reports which people have requested, and I would like to have permission to submit within 30 days additional statements for the record.

Mr. MOULDER. We will welcome any additional statements you might care to address to the committee. You can address them to room 1334, House Office Building, Washington, D.C., to this committee.

Mr. RYAN. This is from Mr. Eugene Sunia, principal, Avalon School. Avalon School lies right over here [indicating]. Avalon, I'm sorry, is down here.

The jetplane noises above, over, and in Avalon School classrooms have been a constant source of irritation and complaint on the part of 26 teachers and 760 pupils since the opening of school in September 1959. In observing in the classrooms I have noted innumerable times that the teacher must cease discussion from 30 to 45 seconds. At present, the most noisy periods during class times are at approximately 8:55 a.m., 9:10 a.m., 9:20 a.m., 11:45 a.m., and 1:30 p.m. The Avalon School faculty, parents, and students would appreciate an abatement of the jetplane nuisance over Avalon School so that our instructional program would continue uninterrupted.

EUGENE SUNIA,
Principal, Avalon School.

This is Sunshine Gardens School over here in the middle of the city.

Sunshine Gardens School has its instructional program interrupted at least 30 to 45 seconds every time a jet takes off over this city. I have not counted the number of jets taking off, but this disturbance amounts to a sizable amount of instructional time lost. I recommend some action be taken to eliminate this disturbance.

ROMOLO BRASCHI,
Principal, Sunshine Gardens School.

High school is right in the line of the normal jet takeoff pattern.

Noise from jetplanes results in a serious loss of instruction time at South San Francisco High School. Techers whose lessons are planned around lecture, discussion, or sound films frequently complain that no learning has taken place during an entire class period because the noise level from jets made communication impossible three or four times during the hour. In addition to time lost when the noise level is so high as to make normal communication impossible (as much as one quarter of the period), time lost by attempting to review or restate what has gone before in order to maintain the sense of the discussion must also be considered. Serious discussions become ludicrous under such circumstances.

Members of our staff feel that almost all the effective teaching techniques known to them will become unusable if there is any increase in jet traffic. This would result in our $4 million high school plant's becoming virtually useless, a loss which the taxpayers of this district can hardly afford to sustain.

Our disaster committee is deeply concerned over the possibility of an accident involving a low-flying jet. Next year 2,000 young lives will be endangered by

jets which fly over our campus. That they do fly dangerously low was most colorfully expressed by one of our students who was moved to exclaim, "Open the window, and let it out!"

LOUIS J. BAGNALL,
Principal, High School.

I would also like to enter into the record, Mr. Chairman, some statements from priests and ministers in the city of South San Francisco which will illustrate the disruption of church service, in connection with churches in South San Francisco.

Mr. MOULDER. All of the documents referred to by Mr. Ryan will be accepted by the committee and be made a part of the record. We will take them up and consider what documents should be made a part of the permanent record at a later date.

Mr. RYAN. This is from the Grace Covenant Church, 740 Del Monte Avenue. The Grace Covenant Church is right over here [indicating on map].

As pastor of the Grace Covenant Church in South San Francisco I would like to voice my opinion in regard to the noise caused by the jets.

Whenever there is a meeting scheduled in the church, and a jet goes over, there must, of necessity, be a pause in the program. Sometimes these pauses are at very inconvenient times and distract so that the continuity of the service is broken. It would be of great help to us in our work, if some of the jets' noise could be eliminated.

I submit these also for the record, and I might add, in connection with the church services in the city, as a member of St. Veronica's Parish it has been a great source of annoyance to me to go to mass on Sunday and find a normally short service lasting more than an hour interrupted seven or eight times. Now, St. Veronica's Church is right here [indicating on map] again within very short range of the takeoff of the aircraft. It is impossible to fly a jet plane without disrupting the enjoyment and use of these facilities.

I offer into the record also a letter from the Chamber of Commerce of South San Francisco addressed to the Hon. Lawrence Brock, chairman, House Subcommittee on Transportation and Aeronautics:

SIR: For many years our chamber of commerce has worked to provide a business climate that would be favorable to the industrial, commercial and residential areas of our city. We have been very successful in attracting our share of the fast-growing economy of our country.

The noise from jet planes passing over our city has caused a situation that threatens the future growth of our community.

The 40,000 residents of South San Francisco hope your committee is successful in finding a solution to this hazardous nuisance.

I'd like to submit this in evidence.

Mr. MOULDER. Yes, the letter will be received by the committee and considered for the record.

Mr. RYAN. Thank you. Also I'd like to file at a later time a letter from the County Manufacturing Association so they may state their position in the matter.

Mr. MOULDER. Without objection, it is so ordered.

Mr. RYAN. I'd like now to introduce into the record to illustrate to you the numbers of our organization a duplicate of the jet petitions previously submitted to the Civil Aeronautics Board and to Congressman Younger. These petitions are representative of every area in the city, and they represent over 4,000 signatures obtained voluntarily with no cost, and they are variously interested in the project.

Mr. MOULDER. The petitions will be received and considered by the committee for the record.

Mr. RYAN. Next, may I offer into the record to support our opposition to the matter, a protest made to the Public Utilities Commission of the city of San Francisco and the Civil Aeronautics Board opposing additional certification of airline carriers for operation from International Airport and against the operation of any additional jet planes from San Francisco International Airport by presently certified carriers until the noise nuisance affecting the city of South San Francisco is abated. This demand came from citizens all over South San Francisco, but I will enter this also in the record.

Mr. MOULDER. It will be so received.

Mr. RYAN. Now, in connection with the Public Utilities Commission of San Francisco we have already heard the discussion from the city of Millbrae with whom we are allied in this problem and with whom we feel a great deal of sympathy because of the nature of it. Their problem concerns the takeoff of jet aircraft. We feel that one of the biggest dangers we face is that they fly over our city. Piston-driven planes were in operation over our city for many years from the airport, but I believe that I can definitely, legally say, "We were here first, you moved in at your own risk," since the time the jet aircraft has arrived. And it is my belief that the use of jet engines represents a different kind of propulsion which is new to our society, and which will need continuous and constant studies for a number of years in order to provide adequate regulations for the city.

Now, in connection with jet flight over the city I think it is indicative that in the April 5th meeting of 1960, commencing at 2 p.m. of the Public Utilities Commission of San Francisco, in their regular calendar of matters, on page 3, item 21, it states the following resolution requesting the mayor to recommend to the board of supervisors that it vote funds, airport funds, to provide increased premium for public liability and property damage. The cost increased to $20,000 from $2,000 in 1941.

Now, gentlemen, in plain language that means, as you are already aware, that because of the increased problem in projection of the flight of jets over the city the insurance companies are putting aside premiums now in event of any kind of accident in the future. While I know it represents a remote threat to the people of that area it still represents a threat, and if we are able to find a way and have them turn right after they take off from the runway here at the airport and avoid flying over the city we will have reached a favorable solution to the problem of South San Francisco.

Mr. Chairman, members of the committee, on behalf of a number of people harassed by this constant noise, I offer for the record a statement from the city manager of South San Francisco.

Now, in order to breathe a little life in this presentation, I'd like to introduce a person from South San Francisco who can make some comments on the matter at hand because she is directly in the flight of it, in the portion of the city closest to the airport. She has kept a running log for some time on the distrubances to her home and the people in her area. So I'd like to call on Mrs. Scannell to mention the log she has and some of the comments she has.

Mrs. SCANNELL. Gentlemen, I don't have a speech. I just have a few notes. I think that Mr. Ryan has pretty well covered the situation in South San Francisco.

However, I would like to read to you the way the traffic is running over my home from runway 28–R, and it is upon inquiring I find that most of the flights have been leaving 28–R recently. April 18, from 12:45 a.m. to 10 p.m., 35 flights were over our area. That means my home or right back of it. Only three of them were the piston-propeller planes.

Now, this was unbearable as you could well understand if you had that much flight. I understand that only 30 jets go out in a 24-hour period so this means we get quite a few trainers coming in. It was our understanding that the trainers were to be removed in order to give us relief but here they are back again so it seems the efforts—well, nothing has happened as a result of all these committees' efforts.

I want to cite another incident on April 19 which was the night before last. I had about 4 hours' sleep. I went to bed about 11 at night and I think it was 1:20—no, it was 15; I have a log I will introduce in evidence which you may keep and check. At 12 a.m. I was awakened by this low jet directly over the house. I was trying to get back to sleep, and I was again awakened at 1:20 a.m. This was directly over the house, and they buzzed the house. They shake and quake, and I am a sound sleeper, but I couldn't sleep.

Mr. MOULDER. What night was that?

Mrs. SCANNELL. April 19. Again at 1:35 another one and quite a few piston planes went over at the same time. It seemed like a complete invasion. So I couldn't get back to sleep until 3 in the morning. You can imagine how hard it was to, after each of those. I couldn't get back to sleep. I was a wreck. This has gone on several nights in a row so I had to phone the doctor and get a sedative and get a good night's sleep last night. I did, but my family didn't. My husband and daughter were awakened at 1:20 and 1:25, and she is a schoolchild, and you can see that this is very, very bad.

So I would like to enter these pages and introduce these into the record since I have others at home, and you can go over these flights and see. Now, let me read this one on April 14, "8:40, 8:44, 8:55, 9:01, 9:10, 9:21, 9:44, 10:05"; well, I could go on like this but it would take too much time. Just one other thing. You can stand one or two, but you can't stand this constant hammering. I have pictures I would like to introduce where they were circling over our area. These were taken with an ordinary 620 Brownie camera and nothing high powered, and you can see they are quite clear. They are written on the back. I would like to introduce these. Here is one, especially, going right alongside of my house [presenting pictures to Congressmen].

You can even see the smoke in them. So, taken with a little camera, you can see they are pretty low. I would also like to protest the use of Federal funds being used to extend runway 28–L. It will only bring it up 28 feet more than 28–R, runway 28–R, which is causing me all this trouble. What do they expect to prove by extending it the same length? It couldn't prove anything but a waste of funds when it could be used to better advantage. I sympathize with Millbrae. It must be terrible, and I don't believe this problem should be solved by turning the jets from one area to another and

causing people to fight for their rights constantly. I believe it should be solved by all the people. I believe if the solution could be worked out by extending that runway R–1, building up the barrier such as was stated could be done—I certainly can't go into that; I am not an expert, but it has been stated it could be done, and I think that is a problem for the Federal authorities. If you gentlemen are aware of the Federal Aviation Act of 1958, in it we have an awful lot of law protecting the people but none of it has been enforced. What has happened to our American democracy? We appealed 3 years ago. In here it says—may I quote from section 309: "No airport or landing area not involving expenditure of Federal funds shall be altered," and it goes on to say, "unless it has been brought to the attention of the Administrator." I feel that our Federal authorities have been derelict in their duties here. They are issuing certificates constantly to these jets when the airport can't adequately accommodate them to the comfort and well-being of the residents of South San Francisco, San Bruno, and Millbrae. What on earth has happened to our country? Many of us are beginning to disbelieve in our Government because we feel that it is up to the Federal authorities to bring in people and police this matter and make them. Sure, we know how these funds are spent. We aren't trying to stop progress or stop the jets. We realize it is a very necessary thing and fine thing, but progress doesn't have to be run roughshod over the people. I believe this should be investigated, and the Federal authorities should, well, investigate how the funds are to be financed in order to protect the people in these areas.

Mr. MOULDER. Thank you, Mrs. Scannell. Mrs. Scannell, the pictures you have given the committee, we can file them with the committee; however, we can't reproduce them for the record.

Mrs. SCANNELL. Thank you. I will take them back.

Mr. RYAN. I would also like to introduce into the record a letter just received from the pastor of St. Veronica's Church. It is very short. He says in the second paragraph:

> The noise is very disturbing to people in church, in school, and homes. During a mass burial service beginning this morning at 9 a.m. and closing at 9:30, three jets went over and caused disturbance to the bereaved. This is only one of many such instances.
>
> If I caused such a disturbance outside the home of a jet official, I would be arrested for disturbing the peace.
>
> Rev. PAUL COLEMAN.
> *Pastor, St. Veronica's Church.*

I'd like to introduce now, Mrs. Ada Bosay, also of South San Francisco.

STATEMENT OF MRS. ADA BOSAY, SOUTH SAN FRANCISCO

Mrs. BOSAY. Mr. Chairman, I would like just to add by presenting a few more pictures that I took that you may see. All I want to know is why the $350 million for 20 feet is going to anybody in this area or anyplace else?

Mr. MOULDER. Thank you, Mrs. Bosay; thank you very much.

Mr. RYAN. The last person to be introduced is a homeowner in South San Francisco, I believe on the agenda, Mrs. Hammon, who was a member of the original investigating committee which spent

3 years investigating this problem. Mrs. Hammon represents the Sierra Highlands Improvement Club which is directly under the flight path of this area.

STATEMENT OF MRS. HAMMON, REPRESENTING THE SIERRA HIGHLANDS IMPROVEMENT CLUB

Mrs. HAMMON. Mr. Chairman, members of the committee, I was asked to represent our homeowners' organization. We have some 700 homes located in our area. As Mr. Ryan explained, our subdivision is located in the northwestern section of South San Francisco between the Buri Buri subdivision and Winston Manor areas.

When runway 28–R is used for takeoffs we are directly under the flight pattern. Naturally, from what you have heard previously, I am sure you are aware this creates a problem for our residents. We have found that daily our normal pattern of living is interrupted, and very rudely interrupted by the noise from jetplanes directly over our homes. Some relief was obtained during the time takeoffs were made on runway 1–R. I realize it was detrimental to Millbrae, but it was a blessing to us.

When we are in the course of a conversation out of doors all conversation must cease. We cannot hear a thing. When we are talking on the phone we are very often embarrassed by having people repeat the statement because we cannot hear anything said on the telephone during the time a plane is in the area.

Since most of our churches are also in the flight pattern we find that our pastors and priests have become players in a pantomime during worship services. They stand in front of their congregations; words are coming forth, and nothing can be heard in the front pews of the church aside from the jetplane passing over.

Our three schools in the area, El Rancho, Buri Buri, and Alta Loma, which serve the children through the kindergarten and through the eighth grade are also suffering. The teachers and children are faced with the problem of interrupted lessons. All oral recitations must stop during the time a plane is in the area. This, I think, was well pointed out by letters Mr. Ryan presented as evidence from the principals of the schools.

Of course, as a homeowners' organization, gentlemen, our prime concern is in property evaluation. We live in a first-class residential area. We have well-kept homes, and we are proud of those homes. We do not want to move out of a high-class residential area due to a noise problem. We feel this has been a great problem to us, and how may we continue to keep the market valuation of our homes high when all you need to do is be in the area when a plane passes over to know a problem exists. We certainly do feel that should the need arise to sell we don't want our well-kept homes to be devaluated because of a noise nuisance. I am sure you will admit that people do not readily buy in this area when they will be faced with a nuisance every day of their lives.

We know under certain conditions the takeoffs over the so-called gap area which was mentioned previously, were a necessity. However, I am sure and we feel very sure in this scientific day and age there must be some solution to the problem. We do not qualify our-

selves as experts to suggest to you what the means are. I think there are people in this field who know the problem and can help us. It is our request, and our very humble request, that when you gentlemen consider and deliberate on this vital problem that you take into consideration the nuisance the people in the flight pattern are facing.

May I extensively thank you for the courtesy of hearing this presentation which I would like to file for the record.

Mr. MOULDER. You file it for the record, Mrs. Hammon. Thank you for your very impressive and informative speech.

Mr. RYAN. There are many, many others here from South San Francisco who are interested in this, and I might call your attention to the fact that South San Francisco is a very young community in average terms of age of its citizens. The men are at work while the women are at home, but I wish with your indulgence for a moment I would like to have the people in the audience from South San Francisco to rise, so in spite of the difficulties you can see the number of people who are here representing our city who are concerned with the problem.

Mr. MOULDER. We want to welcome each and every one of you who are here and assure you of our desire to help solve the problem you are faced with.

Mr. RYAN. Mr. Chairman, I am anxious to make this as brief as possible. I think we have shown through the evidence introduced that the problem is serious, and it will not go away until something substantial is done. As I said before, I realize that it is not impossible to try to reach a solution; it is not a good idea to complain unless one can also offer a suggestive solution to the problem. We have retained Dr. Maurice Garbell, who is the author of a report previously referred to, to speak for a few minutes on what can be done and what might be done by the International Airport and city of San Francisco and Federal Government to relieve the citizens of South San Francisco, in the number of 40,000, and to relieve the citizens of San Bruno, in the number of 25,000, and to relieve the harassed homeowners, numbering some 2,700 homeowners and their families, and the rest of Millbrae, too.

I'd like to introduce now, Dr. Maurice Garbell.

Mr. MOULDER. Dr. Garbell.

STATEMENT OF DR. MAURICE GARBELL

Dr. GARBELL. Distinguished Congressmen, may I say that I have no personal interest in this matter. I am a citizen of San Francisco. I live in the Richmond district near Seacliff. My only interest in this matter is as a taxpayer and hence the employer or coemployer of the airport management. I am very much more interested in helping to find an equitable solution.

There are people in the audience today who have seen me sometimes on the opposite side in controversies which I was helpful in resolving without any litigation—avoiding litigation. I am not angry at anyone; I hope no one is angry at me.

By way of qualifications may I just briefly say that you can find out all about me in "Who's Who in the World of Aviation," which is available in the Library of Congress. I am an aeronautical engineer,

associate fellow of aeronautical space science, and professional member of the Aeronautical Space Society. I worked with the Secretary of the Air Force in connection with the airlift. At the moment I am—or my organization is—the one that spends money, the Garbell Research Foundation, which is a nonprofit corporation which is working on a contract for you gentlemen, Air Information Division for the Library of Congress in reevaluating certain research data to top national executive officers, also for the Military Air Transport Command.

I have studied the San Francisco Airport traffic since 1950 at which time the Garbell Research Foundation was retained to make a research study by the Air Navigation Development Board, a cooperative committee of various departments. The final report is reference 1 of a voluntary noise abatement, and so forth. That study, "The Timing of Airport Traffic Control as Influenced by Weather and Aircraft Performances," has a long section devoted to San Francisco. It starts—by the way, there are about a hundred copies throughout Washington. The FAA sent one to every department. Beginning with page 87 of the "Timing of Airport Traffic Control," we made a detailed study of the San Francisco Airport, to illustrate our theoretical method of analysis of just what makes those little pieces of time go between a departure and arrival on various runways. All of our findings since then have been quite well verified. Every major airport has bought copies from us—we haven't advertised. It goes to the New York Port Authority, with many copies to Los Angeles except one major airport—one major airport; that one, the San Francisco Airport.

At the time of that study the problem of the westbound departures began to become serious. The offending aircraft at that time was the Boeing Stratocruiser which had difficulty gaining sufficient altitude in the San Bruno Gap to the northwest of the airport, and some other airliners. In those other airliners it was quite evident to the CAA and to ourselves that it was a matter of pilot technique. You will find in this little yellow report—an original report—a reference to pilot techniques which, without any more power developed or deviating at all from the CAA aircraft regulations, permit a steeper climb.

Now recently the jet aircraft have come along and, with the jet aircraft, two problems. One problem is the subjective effects of jet engine noise, and I will point to one specific finding. The British have made a controlled experiment with many hundreds of subjects and have reported in the Journal of the Royal Aeronautical Society, January 1960, pages 33 through 36. Now on page 35 a finding is given that as tested in this experiment the Super-Constellations can be allowed to make a physical sound pressure level of 11 decibles. That is 12 times the sound of the Boeing 707; 120 before it is adjudged equally disturbing. That means with the two airplanes producing the same sound pressure on the recording instrument then the jet aircraft is 12 times as observing in subjective validity tests.

It is evident from the paper that jet aircraft, especially with one engine out, will climb at a much shallower slope. It is made evident in a document of the Federal Aviation Agency, Bureau of Applied Standards, 60–4, dated March 11, 1960. This document pertains to

a proposed regulation to expand the lateral obstacle clearance during the takeoff for the propeller-driven airplane, and for the jet aircraft certain special regulations have been promulgated. They are SR–422 A and B which require lower maximum time capability in jet aircraft than was the case applicable to piston airplanes. So it is recognizable by a cognizant agency of the U.S. Government that jet airplanes at times may have to climb at a much more shallow angle than piston aircraft.

Now, all of this was reflected in complaints of residents of South San Francisco, San Bruno, and all the way onto Westlake through this certain saddle-shaped San Bruno Gap to which Mr. Ryan referred which is located in between the Coastal Range and the San Bruno peak. The saddle point is somewhere around 300 feet high and from my personal observation there has been passes over that point in calm wind at altitudes of about 700 feet which is neither safe nor according to Federal regulations nor audibly tolerable.

Now, then, as Mrs. Hammon stated very correctly when there is a strong west wind aircraft, jet and otherwise, departing from runway 28 will—if I may use that word—climb upward. They will be pushed upward at a much steeper slope not only because there is wind but the wind increases with elevation. In other words, you may have a surface wind of 18 or 20 knots, but by the time you get to 200 feet it is 40 knots so a certain amount of energy is fed into the airplane which makes it climb more steeply than normal. Now, the people of South San Francisco have made it quite clear when the wind, the west wind, is so strong that aircraft must use runway 28, then it is also strong enough to raise the aircraft sufficiently. So they do not object to such flights, but they must object to use of the runway during calm wind conditions which I would define as those conditions in which the westerly wind component is less than, say, 13 to 15 knots.

In 1957, when South San Francisco asked me to make an analysis, I told them a few things that at first they didn't like. I told them, for example, that the airport could not be made to go away. I explained why. There are very good reasons for the existence of this airport at this particular point. There are meteorological reasons, and reasons of just moving earth, and other things.

I also explained to them that this runway pattern is very well chosen. There are people in the audience here that helped in the planning of those runway directions. I certainly fully agree with that choice. Those are the only runways which, at the San Francisco Airport, can provide feasible instrument and climbout procedures. Now, then, the resultant combination of my proposals was the increased use of runway 1–R and lengthening of runway 1–R. And you will find in the Noise Abatement Report, on page 1 of the introduction at the bottom of the page, a footnote which states that the CSF Airport, district airport engineer, has assured me "that the construction of blast deflector fences is planned to avoid any added blast and noise impingment on Bayshore Freeway and the Millbrae residential area during takeoff." This is 1957. I, and others, have seen the present fence there. It really isn't much good; I mean, that is not the promised fence.

Now, what to do at this point? Let's examine the effects of an extension of runways 28 right or 28 left. If I were up in the cockpit I

would like a runway that would start somewhere in Hayward. [Laughter.] I mean, the more the better. As an aircraft performance engineer I like more runway, and I think the FAA would stop me at some point, but here if we extend runways 28, let's say, 2,000 feet, how much do we gain in altitude over South San Francisco in a calm wind condition, because we are talking about a critical condition, say, calm wind condition.

Mr. MOULDER. May I interrupt you at that point? I am not an engineer but you mentioned "in a calm wind." Is it possible to generate a wind or air at the end of a runway or alongside of a runway to elevate the plane to a quicker elevation?

Dr. GARBELL. Yes, it is being planned, right there under the wings, for vertical takeoff of aircraft.

Mr. MOULDER. I am referring to a generated wind by a motor power or jet power or any kind of power to take the place of a natural wind. If it be thrust down the runway or even constructed alongside the runway to elevate the plane more quickly and also take the place of the natural wind that you refer to, to stimulate this problem or portion of it.

Dr. GARBELL. Well, sir, I don't know of any external means. We are at this moment designing and testing aircraft—by we I mean the Nation——

Mr. MOULDER. If you will admit that, I won't quarrel with you. Proceed; I am sorry.

Dr. GARBELL. Well, there is no external way, but aircraft are being produced to push themselves off the ground, and they will solve many of these problems, but there is one difficulty.

When I first saw an aircraft known as NC–16069 which Warren Burke will recognize, that is their first DC–3 in 1935, something was said about depreciating in 7 years. Well, the DC–7, and others of its ilk, is still flying. They have a different frame, different skin, cockpit, tail; everything else is new or replaced, but it is still the same airplane. I am afraid the 707 will have to earn its depreciation rate for many years.

Now, going back to extension of runway 28, if I may, how much do we have to gain? We have to gain somewhere in the order of 60 to 80 feet, say, 3,000 feet out—3 miles out. An awful little for an awful big hunk of money.

Then there is another hitch with this extension of runway 28. The weather gets progressively worse as you go east along runway 28. That may sound funny, but it isn't. During certain strata conditions in the summer, the strata ceiling goes down a good 200 feet, and during winter there are actually fog leftovers; that is, the morning condition that follows a night, actually fog. There is a fog patch off runway 28 that is absolutely beastly. No one has measured the density of it, but there have been any number of misapproaches to runway 28 which went like this on an instrument approach, down to 200 feet, pilot still not visual, still not visual contact even though the weather at the airport is 400. One not being able to see the airport approach lights at 200 feet would pull up—no, apply power, then pull up. Then, while climbing, he would break out visual at maybe 300 or 400 feet above the airport, a very silly sounding condition, but it is one that costs many hours of airport time in this missing approach and new approaches. So this extension of runway 28 has its mixed blessing.

Now, extending runways 1 and 19, you realize that runs into the difficulty of the seaplane channel, which on the large map on the wall you may discern way up there in the northern portion. It runs from the seaplane bay section to the left of center up like a panhandle into the bay. This will be costly. Naturally, the beginning of runway 1 then could be moved a little bit north. Of course, it could also be suggested that a takeoff from runway 1 will go way over to somewhere near the threshold of these 28 which would take the departing traffic away from the Bayside Manor. This is a matter of commodity and of gained silencing of the racket down at the—excuse me—the noise down at Bayside Manor.

Now, then, what is a possible solution as far as the exposure of Bayside Manor to the jet exhausts are concerned? It really transcends any description or any definition of the word "noise." This is no longer noise. The condition of South San Francisco during northwesterly climbouts in a calm wind is very severe. The citizens get both the intake screech and the exhaust roar, and that noise stays with them very long. In Millbrae they don't get so much noise, but this is like having heavy artillery shooting at the house, without any exaggeration. There is nothing between the exhausts and the houses. The distance is only 700 feet. And, I believe, what some of the citizens of Millbrae refer to as "this explosion" is the actuation of water injection which is also a partial cause of this smoke condition.

Why does this smoke get blown into the Bayside Manor area of Millbrae? Again, because the deflector fence which is installed at the threshold of runway 1 is incorrectly designed and too small. I believe that, as I find confirmed by Mr. Pietrasanta, that a blast fence and a shielding area can be built to reduce the nuisance to Millbrae to the mere level of noise. That is, just general airport noise. There are several elements in such a fence. I will have a design that I can submit.

I believe that some people say it is impossible. I think I know how it is impossible. There are certain things that are done in certain phases of aerodynamics with which airport engineers are not familiar. If they are correctly applied they can solve the problem of this terrific vibration, this certain noise which transcends noise, and also reduce the smoke nuisance which would make it possible for runway 1–R to be used, as I hoped it would be placed into operation when I presented the report which you have there.

With the exception of the blast fence on page 1, I should like to say that in these 2 years almost everything that is in that report has been placed into operation. The airlines certainly have cooperated to the fullest extent, and one airline asked us to do a complete printing of this report. They have distributed it to their pilots. All of the airlines have contacted me from time to time to discuss some of the problems concerned with the steeper climbout on runway 28 in South San Francisco. And I should say that the Federal Aviation Agency and its predecessor, the Civil Aeronautics Administration, have more than bent over backward to be of help. The Federal Aviation Agency has implemented, and is implementing, the most helpful procedures even though they employ a terrific amount of internal conflict. For example, a visual rules climbout route from San Francisco Airport to Richmond has been planned which is entirely over water. The FAA has made every effort to insure that aircraft de-

parting from San Francisco Airport turn left, passing Candlestick Point, to climb to, say, 3,000 feet, so they will not cause a disturbance to the city of San Francisco.

Now, I can only hope that implementation of a protection for Bayside Manor and Millbrae will be forthcoming because such implementation will not only relieve Millbrae but by relieving Millbrae make it possible for departing aircraft during calm wind conditions to use runway 1–R instead of 28 which will relieve South San Francisco.

Now, I don't like to be in any way facetious but——

Mr. MOULDER. Dr. Garbell, if you have your recommendations in writing you could submit them to us for the record. We would be happy to have them, and they would be made a part of the record.

Dr. GARBELL. I realize this is not an easy engineering solution, but I should like to, as a very proud San Franciscan, go back to another impossible problem.

Mr. MOULDER. I was just making a statement. We have a very large number of witnesses here.

Dr. GARBELL. In 1918, and I am taking this from the Golden Gate Bridge, a report of the chief engineer, 1917, Mr. M. M. O'Shaugnessy, city engineer, made inquiry of Mr. Joseph Strauss whether Mr. Strauss would be interested in the problem of spanning the Golden Gate. He accompanied this inquiry with the statement "everybody says it can't be done and will cost over a hundred million dollars." It could be done. The Golden Gate Bridge was built. It was built at a cost of $35 million. I hope this will be a challenge to a city which has distinguished itself in other things before.

(The aforementioned request was subsequently received for the record and follows herewith:)

MAURICE A. GARBELL, INC.,
San Francisco, Calif., April 22, 1960.

Hon. ANDREW ROCCA,
Mayor, City of South San Francisco,
City Hall, South San Francisco, Calif.

MY DEAR MR. MAYOR: Following my survey of jet noise in connection with jet aircraft operations at the San Francisco International Airport, briefly presented by me orally before the Subcommitee on Transportation and Aeronautics, House of Representatives Interstate and Foreign Commerce Committee, at the Hilton Inn, San Francisco International Airport, on April 20, 1960, the Honorable Morgan M. Moulder requested that I submit a brief summary of my recommendations relative to noise abatement at the San Francisco International Airport to his committee in writing. Inasmuch as my appearance before the committee was at your instance, it follows that any suggestions submitted by me should be directed to you for transmittal of copies, at your pleasure, to the congressional committee; hence the present letter.

In addition to my oral presentation, there are a few remarks on factual aspects of the San Francisco International Airport problem which we believe should be brought to the attention of the congressional committee.

1. *Proposed means for noise abatement.*—I would suggest that an effective baffling system be located at and near the threshold of runway 1 right. Such a baffling system is, in my considered opinion, feasible and would protect the Bayside Manor district of Millbrae from the severe blast and noise impingement imposed on it at the present time whenever jet aircraft take off on runway 1 right. We are prepared to undertake the specific design of a baffling configuration necessary for the particular geometry of runway 1 right and the Bayside Manor district. The elements of the design envisioned by us are basically well known and widely applied in appropriate phases of aerodynamics engineering and sound-protection engineering, but the remedial combination of

such elements for this particular purpose conceived by us has to date apparently escaped the attention of other engineers.

Once our baffling system is installed and the people of Millbrae are no longer distressed, aircraft may again take off on preferential runway 1 right, as outlined in our report "A Voluntary Noise Abatement Program for the San Francisco International Airport," November 26, 1957 (hereinafter referred to as our 1957 report) which has been the basis of the Federal Aviation Agency and aircarrier program for noise abatement at the San Francisco International Airport for the past 2 years. Only if a westerly wind exceeds a speed of 13 knots would there be a need for aircraft to take off on runways 28, and in such event the strong westerly wind would lift aircraft departing from runways 28 to sufficient heights over the residential areas of South San Francisco, San Bruno, Colma, and Daly City (Westlake) that there should be no excessive noise on the ground, provided, of course, that all pilots adhere scrupulously and consistently to the steep-climb-out procedures outlined in our 1957 report and which procedures are currently being standardized by the Federal Aviation Agency in accordance with our repeated urgings over the past 9 years.

In essence, the sound-baffling system conceived by us for installation at the threshold of runway 1 right would protect Millbrae directly, whence takeoffs could resume on runway 1 right, and, at the same time, South San Francisco and neighboring cities would be largely relieved of the noise of aircraft climbing overhead during periods of calm wind.

2. *Extension of runway 28 left.*—As stated in my oral presentation on April 20, 1960, an extension eastward of runway 28 left, to equal the length of runway 28 right, should be a welcome improvement from the general point of view of aircraft operations, since it would afford at all times a choice of two wholly equivalent east-west runways available for landings under most weather conditions and for takeoffs in the presence of sufficiently strong westerly wind. But there is a drawback in an eastward extension of runway 28 left, namely: In most fog and stratus-cloud conditions (which are peculiarly characteristic of San Francisco Bay) the visual range from a pilot's cockpit deteriorates quite appreciably in the half-mile east of the present common threshold of runways 28 right and 28 left because of the presence of dense cloud patches just above the water. Hence, the operational gains achievable by an eastward extension of landing runway 28 left would be modest indeed in conditions of fog or extremely low clouds.

Moreover, we must stress that an eastward extension of runway 28 left will have but a negligible effect on the exposure of South San Francisco and neighboring communities to jet noise under calm-wind conditions, since we cannot disregard the fact that aircraft departing the proposed extended runway 28 left, under calm-wind conditions, will reach South San Francisco at an altitude only some 50 to 100 feet higher than those departing from the present runway 28 right; such a small gain would be wholly inconsequential, insofar as noise on the ground surface is concerned, and the present troubling situation in the South San Francisco through Westlake area of the San Bruno Gap would not be alleviated thereby.

In addition, jet aircraft departing from the proposed extended runway 28 left, under calm-wind conditions, will find it exceedingly difficult to make a necessary right turn directly after takeoff; that is, remaining to the south of 1,481-foot-high San Bruno Mountain. Added to that initial difficulty, an aircraft having made a right turn would unavoidably penetrate the Oakland Airport control zone if it continued to climb straight ahead after its right turn, but it could not make a necessary second left turn, if the prohibition contained in FAA Civil Air Regulations Draft Release No. 60–4, dated March 11, 1960, goes into effect, stipulating "that not more than one change in heading is scheduled" during a takeoff climb of a jet aircraft.

In our opinion, the eastward extension of runway 28 left, even if it were to be supported by the Federal Government, should be preceded by the installation of an effective noise-abatement baffling system at the threshold of runway 1 right.

3. *Current unsuccessful attempts by others to baffle jet noise.*—Directly after adjournment of the congressional committee hearing, on April 20, last, I was approached by a group of Boeing engineers, headed by a Mr. Buck, who attempted to persuade me to disclose to them at least some details of my design; while I did not divulge any of my plans, which are the result of years of research and successful aerodynamics design and testing experience, I drew from

them a description of their own investigations with can-type "noise mufflers and deflectors" which, as is well known, have been frustratingly unsuccessful. Their approach to the problem, in our opinion, does not afford much promise, since it goes counter to fundamental laws of physics, a fact which is borne out by the disappointing results conceded by them.

4. *Plans in 1957 for the erection of a blast fence for runway 1 right at the San Francisco International Airport.*—At the Congressional hearing Mr. Don Fazackerley, a member of the Public Utilities Commission of the City and County of San Francisco, stated that this was the first time he had ever heard Garbell mention a baffle at the threshold of runway 1 right. This statement is somewhat strange in the light of the assertion at the same hearing 5 minutes earlier, by Mr. Belford Brown, airport manager, in his prepared address that he and his staff had participated in the hearing at the South San Francisco City Hall on November 26, 1957, at which time our report "A Voluntary Noise Abatement Program for the San Francisco International Airport" was first presented, and which report contained our stipulation, at the bottom of page 1, relative to the erection of an effective baffling system at the threshold of runway 1 right. We are reminded here that, 2 days prior to the scheduled hearing in South San Francisco, Mr. Brown wrote a brief note to the mayor of South San Francisco (which note may be found in the South San Francisco correspondence file) stating that he had a previous dinner engagement with his airport superintendent, Mr. Harold Messersmith, for the evening of November 26, 1957. Neither Mr. Brown nor Mr. Messersmith was present at the meeting on November 26, 1957, at which time the Federal Government and the air carriers were represented by large delegations of their respective top policymaking, engineering, and operations officials—a gathering approximating the number at the congressional hearing on April 20, 1960. The only representative from the San Francisco International Airport present was Mr. Myles Smith, a lone junior member, who, regrettably, may not have been technically prepared to convey to his superiors the complex information presented by me.

And so, while the Federal Aviation Agency and the air carriers appear to have exerted every effort to implement the noise-abatement program outlined and detailed in our 1957 report,[1] the San Francisco International Airport failed to install the promised necessary effective noise-baffling system at the threshold of runway 1-right, as promised to the Civil Aeronautics Administration, and quoted at the bottom of page 1 of our 1957 report. Incidentally, the statement by the San Francisco district airports engineer of the Civil Aeronautics Administration as quoted in our 1957 report indicates that as early as 1957, the Civil Aeronautics Administration anticipated the erection of a baffling system by the San Francisco International Airport that would be effective.

The failure, to date, of the San Francisco International Airport to fulfill the 1957 promise of an effective baffling system at the threshold of runway 1-right, in our opinion, has resulted in the trouble at Bayside Manor and in the current breakdown of the program utilizing runway 1-right as a preferential takeoff runway. This is regrettable since the San Francisco International Airport is one of the few airports in the country where a solution to the jet-noise problem may be had.

5. *Future assistance by us to the San Francisco International Airport.*—In accordance with the hope expressed by the congressional committee for mutual cooperation, we should be glad to assist in the resolution of the regrettable impasse, but we feel that any approach for assistance by us should be initiated by the city and county of San Francisco in writing, and that any proposed meeting be held jointly with members of your city council, and, should you so desire, those of neighboring communities; also, that the proceedings be recorded by a court reporter.

Very truly yours,

MAURICE A. GARBELL, *President.*

Mr. MOULDER. Thank you very much, Dr. Garbell.

Mr. RYAN. Mr. Chairman, in closing our presentation I would like to make a few statements myself in regard to South San Francisco. First of all, we are inalterably opposed to the extension of the east-west runway which Dr. Garbell's report referred to. Also in this

[1] Following a searching study of our 1957 report, United Air Lines ordered an additional reprinting of it in 1958, for broader distribution of it among its staff.

report it was noted at the time that report was published that certain difficulties would occur if that runway 1–R was extended. Those difficulties did occur. We think that if a study is made which takes into consideration the people who live in the vicinity of this airport, and who were here before and therefore have prior rights, people who were here before the initiation of jet traffic, we think that the matter can be successfully solved by the use of the north-south runway. First of all we propose a noise alleviation device such as Dr. Garbell presented to relieve these 250 homes in the Bayside area of Millbrae. Use of the north-south runways will provide relief for 40,000 people in South San Francisco and 25,000 people in San Bruno and 5,000 people who live in Millbrae. We favor the extension of runway 1–R as far north as necessary to prevent the threat to South San Francisco and San Bruno, and remove the source of noise in Millbrae. We favor the development of the eastern end of runway 28, if necessary, only if planes can turn right and avoid any kind of flight pattern over South San Francisco, San Bruno, and Millbrae. Now, in closing, I would like to quote from a statement submitted by Mr. David D. Thomas with whom I am sure you are familiar, Director of the Bureau of Air Traffic Management. This testimony was presented on February 23 of this year before the House Committee on Interstate Commerce. During the course of that testimony Mr. Thomas introduced a Mr. Bartholomew S. Spano, an acoustical expert, who, while previously employed by the Federal Aviation Agency, conducted numerous studies on aircraft noise.

I would like to refer you to that report. There are other things in it but there is one sentence on page 2 which I think spells out as well as any statement made so far the position we find ourselves in now. Mr. Spano says on page 2 of this particular statement:

> **Fundamentally, the most effective noise abatement program now available to us is the rearrangement of traffic patterns and the establishment of preferential runways to the extent possible to provide approach and departure courses over water areas or the least populated areas of communities.**

Now, I think that statement speaks for itself. If that policy is ever established it will take care of the problems we have in South San Francisco, San Bruno, and Millbrae.

I would like to express our thanks for the long hours that were spent by many, many people in this area, and we really appreciate the response today.

The time has come now to have an end to talk and make a beginning for some kind of action so we can provide them with some kind of relief. Thank you very much.

Mr. MOULDER. Thank you, Mr. Ryan.

At this time we will take a short recess.

(Short recess taken.)

Mr. MOULDER. Please be seated. The Chair wishes to announce—would those in the doors please come in and be seated? The Chair wishes to announce that we will continue until 12 o'clock, and then we will recess until 1:30.

On the schedule the next presentation is by the city of San Bruno, and Mayor Herbert F. Beckner. Pleased to have you with us, Mayor Beckner.

STATEMENT OF HON. HERBERT F. BECKNER, MAYOR OF THE CITY OF SAN BRUNO

Mayor BECKNER. Mr. Chairman and members of the committee, I want to make one statement. We come from the city of San Bruno which is a city, at least from the latest report, of 1,750 more than the previous speaker spoke about. The city of San Bruno when they are using runway 28 is the first city to be hit by the noise and nuisance created by jet operations. We have two schools, one of them very close to the airplanes as they take off on this operation. Now, this report that I will read has been passed on to the members of the committee, and I want the whole thing made a part of the record if I may. I will read most of it myself.

The city of San Bruno wishes to extend to you our heartfelt thanks for arranging this meeting so that we may express our views relative to the disturbances which are caused by the jets operating at the San Francisco International Airport.

We recognize that the airport is an essential part of the economy of the San Francisco area and we, therefore, do not oppose the operation of the airport but we do pray that the nuisance which it causes may be minimized to the fullest extent.

Fundamentally, there are three ways to reduce noise: First, by muffling or suppressing it at the source; second, by muffling it at the receiving point; and third, by making use of the fact that sound pressure falls off rapidly with distance.

The Administrator of the Federal Aviation Agency, General Quesada, has gone on record stating that the Agency is intensely interested in all research concerning noise suppression, and that the Agency is engaged in making comprehensive studies of all methods of noise alleviation. He has also stated that the Agency will encourage research in the subject by all Government agencies, as well as private industry.

We earnestly pray that you will insure that the operators of the San Francisco Airport will use all feasible means which research makes available for noise suppression.

Prior to November 1959, all airplanes at the San Francisco Airport were taking off on runway 28–R, over the cities of San Bruno and South San Francisco, through the San Bruno Gap. This caused such a disturbance to the city of San Bruno that within a few days petitions were received from 1,000 residents of the city, which read as follows:

I will not read that petition. I will present that as evidence which will save a lot of time. I know that the evidence is there in good hands.

Since these petitions were received the airport completed runway 1–R, which takes off over the bay, and began to use it. Immediately, the problem of noise and disturbance from jets taking off over the two cities on runway 28–R was diminished. This change in flight pattern was welcomed by the residents of both cities. We are speaking of both South San Francisco and San Bruno.

Recently, however, this nuisance has become more and more unbearable and it appears that runway 28–R is back in use. Life cannot continue under such circumstances, and we plead with you to help us.

It is our belief that all airplanes should take off over the bay when it is possible to do so, and we recommend that runway 1–R be extended to the bay so that takeoffs would be further removed from the residential areas of San Bruno, Millbrae, and south San Francisco.

We believe that the extension of runway 28–R will not solve the noise problem as the planes will still be flying through the San Bruno Gap over the populated areas of the peninsula.

The San Bruno Park Elementary School District has included in this presentation their objections to jets and the nuisance created in the schools by them which I will read. Addressed to J. C. Keefe, San Bruno city manager:

DEAR MR. KEEFE: The board of trustees of the San Bruno Park School District has followed with interest the controversy involving jet planes at the San Francisco International Airport. We wish to go on record supporting the city of San Bruno in its demands for the continued use of a lengthened R–1 runway. We strongly oppose any action that will increase the flight of jet planes over the San Bruno Park School District.

Jet planes taking off over the city of San Bruno are a disturbing factor in the education of our children. As the number of flights are increased, the greater the disturbance will be.

The San Bruno Park School District recently had to withdraw its application for a site in the lands declared surplus at the San Bruno Naval Base because it was in the Doolittle zone. The CAA also recommended against it on the grounds that the noise from the jets would make the site unusable for school purposes.

In the last few months, with the use of the R–1 runway, we have noticed a substantial decrease in the interference from jets. We, therefore, highly recommend using a lengthened R–1 runway to its maximum.

The airport completed runway 1–R since these petitions were received.

Mrs. Lois Ridgeway, a resident of San Bruno, will speak now on behalf of the homeowners.

Mr. MOULDER. Mrs. Ridgeway.

STATEMENT OF MRS. LOIS RIDGEWAY

Mrs. RIDGEWAY. Mr. Chairman, in behalf of the residents of San Bruno, really the hardest hit, I would like to protest the extension of runway 28–R which will be absolutely of no value because the jets cannot gain enough altitude in that short distance to do away with the unbearable noise they create.

I find that "we, the people," no longer are blessed with the rights which our Constitution intended us to have. Our property value has fallen; our homes are rocked loose from their foundations; our windows rattle; we can't hold a telephone conversation, listen to a radio program, or watch a television program without interruption.

I might say that people who have to wear hearing aids don't dare turn them on because the noise from the jets actually blasts the tops of their heads off. Our freedom to worship is no longer ours. For instance, April 17, which was Easter Sunday, our services were interrupted seven times in 45 minutes. Last, but not least, our health is at stake. We, at no time, have a break where we can get a complete 8 hour's sleep. Our children awaken in the night screaming, and some of them even fall from their beds in fright. Our nerves are shattered, and I think we have got to the limit of our endurance. I think that you should take the money that is appropriated to extend 28–R and use

it to extend 1–R out into the bay away from Millbrae where it wouldn't bother them, and I think that would solve a lot of our problems, our noise problems, if they took off over the bay.

Mr. MOULDER. Thank you, Mrs. Ridgeway.

Mayor BECKNER. Last night we had a reorganization of the board in San Bruno, and this is my first official job as San Bruno mayor, so I am not like Webb here. Webb has had it for quite awhile and going off, and I am just coming on. We have our vice mayor, Morris Hamilton, who, at this time, will give us a few words.

STATEMENT OF HON. MORRIS HAMILTON, VICE MAYOR, CITY OF SAN BRUNO

Mr. HAMILTON. Honorable Congressmen and members of the audience, I wasn't originally scheduled to speak here today, but I feel that there are a few points which have not been made in which I, perhaps, have had unique experience which I would like to elaborate on at this time.

This jet noise abatement problem is not a new one with me as a personal experience. I was a member of the first jet Air Force unit overseas in the Philippines in 1945 to 1946 when our first operational jet aircraft was the F–80 Starfighter. At that time, I was a fighter pilot with the Air Force. I am still a member of the Air Force Reserve.

If you people who have complained about the vibrations and the disturbances to your homes today, your wood-frame constructed homes, had experienced the same thing we had next to the runway in a quonset hut, I am sure you would see this multiplied many times. Therefore, I feel that I have experience with this particular problem as long ago as 1945. I have lived close to this operational airfield since leaving the service in 1947, I have lived in the San Francisco Bay area and in the last 5 years in San Bruno. During this time I have been a jet fighter pilot with the Air Force Reserve of the 349th Fighter Bomber Wing at Hamilton Field.

I know from personal experience that these aircraft can be operated in such a way that they can tend to alleviate the noise abatement problem for the residents near the airport. We receive constant instructions and reminders in our Reserve jet flights of this problem.

Now, admittedly we were flying fighter planes of high performance ability. When we took off from an airport we were able to climb rapidly, 5,000 feet a minute, and to pull up at quite steep altitudes and to turn away from populated districts. I realize that our civil passenger jetliners simply cannot do this.

However, I agree with Dr. Garbell that a great deal more can be done in this direction. I think it behooves the airlines themselves, who are flying jetliners from the San Francisco Airport, to perhaps give their pilots a jet refresher technique course where they can instruct them in the proper method of flying the aircraft to obtain altitude quickly and to turn away from populated areas over the bay. I feel that a great deal more can be done with respect to this.

I have been a strong advocate of airpower not only locally but nationally since 1946. I was a charter member of Doolittle's well-known Air Force Association. I have participated in their affairs since 1946

on a local and national level. I do not advocate the doing away of jets, either military or civil.

I think, however, that proper controls can be applied which will relieve the problems that we have been hearing about today. A couple of these have been mentioned by our mayor, Mr. Beckner. I have already mentioned the possibility of a refresher course on pilot technique. As a matter of fact, some of my fellow jet fighter pilots in the Air Force Reserve, at least six of whom I know are now flying jet fighters, pilot out of this airport, and I know they, with proper instruction, can take off their aircraft, fly away from the populated areas so as to relieve the noise and vibration effects that a jet engine creates, and they can do this with minimum passenger discomfort and within the safety limits prescribed by the Civil Aeronautics Board.

Dr. Garbell mentioned another factor which I think can be used as an interim solution, and that is the proper erection of the runway barrier or baffle near the takeoff point which would relieve the noise, smoke, and vibrations.

However, I think that a long-term solution here, one which we will probably not see for some time, is going to require, again something in the method that Dr. Garbell has suggested, the lengthening of runways into the bay so that the takeoff is long enough to give the aircraft sufficient altitude so that they can safely turn away from populated districts. Now, on these matters I am speaking from, primarily, an experience level.

I am a resident of the windblown Crestmoor area where we are not really bothered very much by the jets. As a matter of fact, my 13-year-old daughter has suggested we rename it from Crestmoor to Blowing More, so that the wind does abate most of the noise and vibrations. However, we do feel occasionally, particularly on these takeoffs when the water injection system is used, an explosive force which actually rattles my house on the hill fully a mile and a half away as the crow flies.

As I mentioned, I think that the pilot technique refresher course and the erection of these barriers are perhaps the two most immediate interim solutions that can be found. I think the long-term solution lies in the extension of the proper runways. I thank you, gentlemen.

Mr. MOULDER. Thank you, Mr. Hamilton.

Mayor BECKNER. In conclusion I would like to say I live in the restricted part of San Bruno where we don't have too much trouble. The Lomita Park section is between the two runways and has had very minimum experience with jet noise. When I visit someone in another part of San Bruno it is brought right back to me. Our churches and schools and city government are near the flight pattern so the fact is we have interference all the time. I would like to express our appreciation to the committee for hearing the problems we have.

Mr. MOULDER. We would like to express our appreciation to you, Mayor Beckner. We are running behind schedule——

Mayor BECKNER. That is why I cut it as short as I could.

Mr. MOULDER. The committee will stand at recess until 1:30.

Mr. YOUNGER. May I have the privilege of introducing a letter just received from Mrs. John C. Benso to follow the letters of the other individuals from south San Francisco?

Mr. MOULDER. The committee will be in order. I have been advised that the Burlingame presentation will take just a few minutes, and we have time to complete it. City Manager Charles Schwalm.

STATEMENT OF CHARLES SCHWALM, CITY MANAGER, CITY OF BURLINGAME, CALIF.

Mr. SCHWALM. Mr. Chairman, members of the congressional committee, I will be brief. We have one witness here who is a representative citizen who will describe how this problem affects the residents of our city. As you know we are at the southern end of this nuisance. Actually, it is the northern part of our city that is affected. Approximately 3,000 people, I would say, suffer from this.

I am not an expert on sound or runways, but I would say this, if they are going to shift those runways around, like they have been doing, don't shove them over the major part of our city as a solution.

But I would like, before we call a witness, to state this. Probably I can add this objective statement to this matter because I have met with these other cities. I have been in this public business 13 years, and you do become an expert on complaints, and if I have ever seen a legitimate complaint from decent citizens, this is it. I classify this as taking of their property without due process of law, and I think if you will look at them in that light that you will give them relief. So I will call upon our citizens, and then you can adjourn.

Mr. Robert Stiff, who is a resident of Burlingame Village.

Mr. MOULDER. I would suggest speaking right into the microphone.

STATEMENT OF ROBERT STIFF

Mr. STIFF. I represent Burlingame Village which is just directly southwest of the airport. I am representing some 460 people in my area. Near us are Ray Park and Mills Estates which are also very seriously affected by the noise. We did send the city council a communication from around our area in which the people voluntarily said that the jet noise was a disturbing factor in their lives. We submitted a request to the city council.

It was our understanding at the time that the long-range problem was as Mr. Hamilton described it, the extension of runways, and in our particular case we thought the extension of runway 28–R would be the answer by allowing enough leeway, enough extension to get the jets high enough over South San Francisco, thus solving the problem for not only Millbrae and Burlingame but for San Bruno and South San Francisco. I am just speaking now specifically for Burlingame Village which is an area of some 250 homes, some 460 people.

The problem of jet noise and smoke has been, since the advent of runway 1–R, a problem of increasing seriousness and dimension. Speaking rather specifically for the area of Burlingame Village, an area directly southwest of the above runway—for the Congressmen's information that is just about one-half mile. We are not as seriously affected as Bayside Manor but we are very seriously affected—and consisting of some 250 homes, these are some of the recurring com-

plaints heard from homeowners. Perhaps redundant of what we have heard this morning from Millbrae and Bayside Manor.

Impossibility of sleep at night when 1–R is being used; impossibility of conversation out of doors when jets are warming up on 1–R; children frightened at play; difficulty of keeping windows and exteriors clean because of jet discharge; unpleasant odor in the air; psychological effect on one's nerves by continuous roar. At this point this is a roar. As Dr. Garbell said, "It is not just a noise." This is many decibels louder than any existing noise in an already noisy civilization.

We in Burlingame Village are in agreement with the Burlingame City Council in its feeling that with increasing air travel and jet aircraft use, this problem is going to get worse. Extension of runway 28–R seems to be a temporary solution, and I underline "temporary solution," to the problem, one which will offer some relief. While we have taken the lead as far as action in Burlingame is concerned, we have been in communication with Ray Park and Mills Estate, and they are planning on joining us for alleviation of the problem.

I might simply, in adding this to the record, say in closing that I think one point needs to be made this morning, and it hasn't been made; that is, it might appear to the Congressmen that the areas affected, specifically South San Francisco, Millbrae, San Bruno—and I might add Burlingame—don't want to be neglected because we are affected with the concerned. As I indicated, I think the point needs to be made, especially those of us who are homeowners, are not experts in this matter. We don't want you to think we are divided among ourselves in this matter or that one is pushing for the extension of runway 1–R, another 28–R, another sound bafflers, the difficulty of altering flight patterns, and the refresher courses, and so forth, and sound barriers, all of these things are possibilities which most of us here, I suspect, are not experts in, nor is this our vocation. We don't make our living this way, but I would like to express our appreciation for Burlingame in general and especially North Burlingame for Congress' concern with the problem. We hope they concern themselves not specifically with one or two aspects of the problem but every aspect, and to seriously concern themselves to alleviate this drastic problem we have had to live with.

Mr. MOULDER. Thank you, Mr. Stiff.

We will recess until 1:30.

(Whereupon, at 12:05 p.m., the committee recessed, to reconvene at 1:30 p.m., the same day.)

AFTERNOON SESSION

Mr. MOULDER. The committee will be in order. Will everyone please be seated and let's have order in the hearing room. The meeting will be in order.

I want to say it is one of my greatest honors and privileges and a pleasure to present to those who are here and to the members of this committee, the mayor of San Francisco, George Christopher. We are proud to have you with us here. It is a great honor for us to have you here.

Mayor CHRISTOPHER. Thank you very much, Congressman. I might say, Mr. Chairman, and members of the subcommittee, that I have come down here today to extend, first of all, a very cordial greeting to our distinguished visitors who have come from Washington to consult with us on what I consider to be a very important problem. It affects San Francisco. Of course, it especially affects our good neighbors in the immediate vicinity of the airport. And, I might say, Mr. Chairman and gentlemen of the committee, that we have spent in San Francisco the sum of $75 million trying to give the people of this great area a good airport. It seems to me that perhaps progress has caught up with us too soon, and we are happy that you are out here because we have a few problems, and we want some company in trying to solve these problems.

I want to express my respects to Congressman Younger and to thank him for having brought about this meeting. And I want to express my respects to Congressman Brock, and to you, Mr. Chairman, and to Mr. Derounian, who have left such a busy schedule back in Washington to come out here and try to help us in this very pressing problem.

I understand the problem. I live almost on the borderline, Mr. Chairman, on the borderline of San Francisco and San Mateo County. I must say that I appreciate, very much, the matter that confronts the good ladies and gentlemen who no doubt will be appearing before you during your stay here.

This is a technical problem to be sure. It is a problem that confronts not only San Francisco but a problem that confronts many, many airports throughout the country, some even bigger than San Francisco. And I know that the dedicated efforts of our congressional subcommittee will perhaps be most helpful in trying to solve this very delicate and very intricate situation.

I want you to know, Mr. Chairman, and gentlemen of the subcommittee, that whatever your findings are, and I am sure after you study the testimony, and after you consult with your technicians, perhaps you will have some suggestions to offer us. As the mayor of San Francisco, and I have talked this over with the members of our Public Utility Commission who are in charge of our airport, I want to assure the distinguished gentlemen of this subcommittee that I will do everything within my power as the mayor of San Francisco to alleviate this problem because, first of all, we want to be good neighbors. We can't be enclosed in an environment of not being good neighbors. We want to do all we possibly can to be good neighbors. If it takes money to do that, Mr. Chairman, I assure you we will expend that money, and, perhaps, even the Federal Government will give us a part of it. [Laughter.]

I am not saying that as a suggestion, I say, perhaps, but if they don't it is still our problem, and I want to assure the good ladies and gentlemen who are here today that we are going to do all we possibly can to solve the problem as our technicians tell us it should be solved. And with that I will go back to my office, and in case there is someone here who is mad at the mayor of San Francisco, and if I am not here personally, they can express themselves more forcibly and eloquently, and I want to give them every opportunity to say what they want to say. But to you ladies and gentlemen please be sure we are going

to do all we possibly can to alleviate this distressing situation. I know how it is, and I sympathize with you.

In conclusion, I want to thank our distinguished Congressmen. They are very fine gentlemen. They came into the city; they didn't ask for any police cars to escort them in. They didn't ask for any special favors; I wish they had, but they didn't. They have been very gracious and very kind.

And ladies and gentlemen, in passing and in conclusion, let me say that the Congress of the United States today is engaged in some very vital work. The work they are engaged in constitutes life or death, perhaps, for our great country. They have to contend with problems of such great magnitude that I am happy I am not a Congressman. Today their decisions have a broad scope of international importance, and yet they have put aside these very complicated matters in the true spirit of our democracy, in the true spirit of the old tenet that an injury to one is an injury to all, and they have come out here to see to it that the individual needs of this little particular community on the peninsula of San Francisco and San Mateo County are taken care of, and there is the very spirit of our democracy. There is the very spirit of what our Congressmen do for us, and for that I am most grateful and express my gratitude to them.

I hope they will come out here again sometime in the future when they have no such problem as this so all of us together, San Mateo and San Francisco, may get together and extend to them our most sincere welcome. Welcome again.

Chairman MOULDER. We will recess then for 5 minutes, and wait. (Short recess taken.)

Mr. MOULDER. Let's have the hearing room in order, please. I ask the cooperation of everyone of these people who want to appear here to present their views so that we might hear them and also conduct the hearing, expedite it, so that we may complete it today.

The Chair recognizes Congressman Younger who wants to present some people who have appeared here with interest in the hearing being conducted today.

Mr. YOUNGER. Mrs. Anna F. Bray of St. Mary's Park and friends from San Francisco who weren't on the schedule for today but who have a difficulty, and want to present their case.

STATEMENT OF MRS. ANNA F. BRAY, SECRETARY, ST. MARY'S PARK IMPROVEMENT CLUB

Mrs. BRAY. I am Mrs. Anna F. Bray from San Francisco. Our area is located in the southern end of the city; St. Mary's Park Improvement Club on whose behalf I am here. I am not mad at Mayor Christopher, as he thought somebody from San Francisco would be. He has been very cooperative. But I think my saying just a couple of words today will emphasize the terrible problem they have in San Mateo County because we on the southern end of the city are terribly annoyed by the noise of the planes.

We had a meeting of several civic groups. They sent representatives, and everyone had complaints. We complained to all the proper authorities, and I am here today because our Congressman Shelly from the Fifth District in San Francisco sent us a telegram about

these proceedings. We are coming uninvited, but the secretary, Mr. McQueen, was very kind to allow me these few minutes.

In closing, I would like to read a statement of a companion of mine today, Mrs. Arthur Williams of Forest Hill:

"I am glad to find today the attitude of these executives of this congressional hearing is one of cooperation and not 'The planes are here to stay, so sorry, so what!' I am sure the outcome of this hearing will bring some immediate relief. Mrs. Williams."

Mr. YOUNGER. Thank you very much.

Mr. MOULDER. Next on the schedule, Mr. T. Louis Chess.

STATEMENT OF T. LOUIS CHESS

Mr. CHESS. Mr. Chairman, members of the Transportation and Aeronautics Subcommittee of the House Interstate and Foreign Commerce Committee: Before submitting my statement, I would like to take this opportunity to present the Board of Supervisors of San Mateo County, my colleagues. Is Tom Collins back from that luncheon? Ed McDonald is here. Ed, will you stand and let them take a look at you? Supervisor Bill Werner? Supervisor Al Hench? They were in that manufacturer's luncheon. They are probably in the area somewhere.

I am appearing before you today both as a representative of the board of supervisors of the county of San Mateo and a member of the mutual problems committee of San Francisco and county of San Mateo, and, I might add, as a member of the board of directors of the San Francisco Pollution Control District.

Noise problems caused by the jet plane traffic at the International Airport is not a local problem to the northern part of San Mateo alone. On the contrary, the increase in noises resulting from greater jet airplane traffic and operations are of great concern to the remainder of the municipalities and unincorporated territory of the county. It affects many areas in the county. The county is concerned about the necessity of eliminating the jet noise problem so that the welfare of all the inhabitants of the county may be improved and preserved.

It has therefore adopted a resolution urging the Federal Agency to reconsider itself and omit the extension of runway 28 left from the allocation to the International San Francisco Airport under the Federal Airport Act. In this connection we have been informed by the Federal authorities that the extension of runway 28 would help to alleviate some of the problems because it would give them a greater running distance on the runway which will be extended out to the east in length, giving greater runway, and giving opportunity to the plane to gain substantial elevation over and above its present pattern of flight. It is also our information that in the overall extension of this particular runway that it is quite possible that the flight pattern may be adjusted—as touched upon by some of the previous speakers—so that it may, at least in the interim, alleviate the situation from the standpoint of noise over the residential areas.

This action has been taken by the board of supervisors of San Mateo County for the reason that the jet noise problem has reached such heights that the situation has become intolerable for the citizens of the county of San Mateo, particularly those living in communities in the vicinity of the airport and those areas on our Bayshore Freeway.

The board of supervisors feels that the public necessity demands the appropriation of Federal funds to aid the city and county of San Francisco in the extension of other such runways at the airport to eliminate the constant and severe jet noises caused by the landing and departing of the jet airplanes, and planning further sufficient Federal funds to provide for proper runways at the airport, and acting in this matter to take every possible step necessary to find a permanent solution to the severe jet noises that deafen us in order that the essential development of our aircraft industry will not be stalled.

In San Mateo and adjacent territories, and particularly within the vicinity of San Francisco International Airport it seems to me that with the cooperation of the city and county of San Francisco and private jet airlines, the companies directly concerned, that the constant nuisance of sonic booms and the distraction of the aircraft operations can be eliminated. Again I wish to emphasize the importance of sufficient Federal appropriations to assist the city and county of San Francisco in the extension and development of runways, and its airport, to move the source of noise out into the bay and to assist the jet noise abatement program that is so desperately needed.

Mr. Chairman, it is a pleasure for me to appear before this committee. I would like to take this opportunity to extend to you and your colleagues the wishes of the board that you enjoy your visit here, that it will be successful in every respect, and certainly we appreciate the opportunity that you afford all of us here to present our respective views to this committee of yours so that you may have the feeling of the community not only in San Mateo, but also San Francisco, as to our position in this troublesome problem.

Mr. MOULDER. The Chair recognizes Mr. Younger.

Mr. YOUNGER. I'd like to call on Assemblyman Louis Frances, in whose district the airport is located. Representing the north end of San Mateo County, Assemblyman Lou Frances.

STATEMENT OF LOUIS FRANCES

Mr. FRANCES. Thank you very much, Congressman Younger. Mr. Chairman and members of the committee, it is indeed a pleasure to appear before you to express a few words today. Unfortunately, this jet problem in the airport, as you gentlemen know, is not a matter of State jurisdiction but is strictly a Federal matter.

I will not take your time to present any arguments to justify relief because I am sure you have had some excellent witnesses already appear before you. I would, however, like to take the time to express some words of gratitude for this congressional committee who left a very hectic and busy schedule in Washington to come here to San Mateo County. We are certainly honored. It is a great privilege to our county that you have granted this special privilege to us, and I am certain that a great deal of credit should go to our Congressman who, because of his influence and prestige, has arranged for this meeting here today. I am familiar with the schedule at the Capitol, and I know what a great sacrifice you did make, and considering that there are thousands of counties in the United States, many of which have similar problems, it is indeed a great honor. Thank you very much, gentlemen.

Mr. MOULDER. The next presentation or witness will be representing Local 505, Transport Workers Union, Mr. Roy Wilson.

STATEMENT OF ROY WILSON, REPRESENTING LOCAL 505, TRANSPORT WORKERS UNION

Mr. WILSON. Honorable Chairman, Honorable Congressman, directly connected with the jet noise problem and inseparable from it is the airport site.

I would like to call to your attention and consideration to the vanishing airport site.

The airport site is a paradox. It disappears as population expands, but the need for an airport grows proportionately. The bay area has one last chance for a bold outlook on airport sites before they vanish under population pressure.

We recently had a case of a vanishing future airport site. In the middle of San Francisco Bay, just east of San Francisco Airport, there is a large shoal called San Bruno Shoal. The San Mateo County Planning Commission in a public report thought this shoal had future possibilities as an airport. It is centrally located to all points in the south bay, and the approach and takeoff of aircraft would be over a large body of water.

Now the site is vanishing. Private developers aware of the quality of the material in San Bruno Shoal (sand) and its being the only deposit in the south bay are bidding for the material from the California State Land Commission. This shoal material will be used to fill in a low area, called Brewer Island, a peninsula near San Mateo, Calif. Future homes on Brewer Island will be directly under the low landing pattern of San Francisco Airport.

Protests of planners for a 2-year moratorium to study San Bruno Shoal have not been heeded.

There are other large sand deposits in the north bay located near airports or proposed airports that should be studied for future development, such as Crissy Field at the San Francisco Presidio, Alameda near Oakland Airport, Marin County, Angel Island, and Richmond.

The key to airport development is the traffic pattern in the sky and its relation to how it can best be developed to serve an entire urban area. Congress has provided funds to study the development of harbors, such as Bodega Bay. Congress has set aside lands for recreation with the cooperation of local government and private development, that is, Point Reyes.

We ask that Congress take a bolder look at its long-range program of airport planning.

We ask that Congress set up a committee to study the bay area airport noise problem, taking into consideration all of the possible feasible aspects. This may range from the Government holding and allocating San Bruno Shoals and other north bay shoals for the extension of the existing airport before these natural resources are exhausted by private developers. Perhaps even the development of an airport in the bay that will service all nearby cities, using San Bruno Shoals as an initial foundation with connecting causeways.

And I'd like to leave a report from the San Mateo County Planning Commission and the South Bay.

Mr. MOULDER. Thank you.

Now, the remaining witnesses or people to appear before this committee are listed on the schedule. It has been suggested to the com-

mittee that Mr. Belford Brown who is the manager of San Francisco International Airport be available for questioning. I understand that Mr. Brown may wish some time to make a statement first, and then following that statement to appear 20 minutes, each one. I am suggesting it to the committee, you may overrule me if you wish, that they, together with those representing the Federal Aviation Agency, be seated here and be open to questioning by those people who feel they are affected by functioning of their official positions, and I think there should be open questioning by the members of this committee.

Well, first, here is Mr. Brown.

Mr. BROWN. Mr. Chairman——

Mr. MOULDER. Mr. Brown.

STATEMENT OF BELFORD BROWN, MANAGER, SAN FRANCISCO INTERNATIONAL AIRPORT

Mr. BROWN. Members of the committee, my name is Belford Brown. I am manager of the San Francisco International Airport, which is municipally owned by the city and county of San Francisco and is operated under the jurisdiction of its public utilities commission.

The purpose of my statement—or purpose of this statement is to give you some background on the history and development of San Francisco International Airport, together with a brief description of our facility, and to acquaint you with the record of what we have been doing to meet the problems posed by the advent of commercial jet aircraft.

For purposes of reference, I have appended a number of exhibits which provide considerable supplementary detailed information and which I request be made a part of these records. These exhibits are listed under appropriate titles at the end of this report.

Now, sir, the airport is located on the San Francisco Peninsula, in San Mateo County, and is 14 miles and 20 minutes from downtown San Francisco.

The city and county of San Francisco dedicated the airport in March 1927. Since then it has grown steadily, keeping pace with the tremendous growth of the bay area, and at present ranks fifth in the Nation in scheduled air passenger traffic.

During recent years the airport's growth has been in giant strides. This can best be measured by its soaring passenger volume. In 1956–57 it accommodated 3,684,830 passengers. The following year it broke the 4 million mark with a passenger total of 4,046,524. And for the fiscal year ended June 30, 1959, it was up sharply again, to 4,275,675.

And Mr. Messerschmitt, my associate, is directing and will during these comments point out some of the remarks which I would like to emphasize. The total area of the airport is 3,569 acres—of which 2,060 acres are reclaimed land. Of this total area, 960 acres are devoted to the landing field, 186 acres to the terminal area, 685 to aircraft maintenance, 39 to commercial establishments, 190 to drainage and miscellaneous airport service facilities.

Additional property planned to be purchased for the protection of airport approaches and for future expansion amounts to another 1,270 acres now under water.

Part of the airport acreage described above includes a corridor of approximately 200 acres which lies across the Bayshore Freeway from

the airport proper, and which is presently devoted almost exclusively to agricultural and drainage purposes. This property is considered to be a buffer or transitional zone between the airport and the adjacent communities.

Exceptions to this transitional zone, however, are the two small developments of Marina Vista Park and Bayside Manor. These residential subdivision projects were developed in the mid-1940's as war housing and constitute the only residential areas between the Bayshore Freeway which flanks the airport and the Southern Pacific Railroad tracks which have always served as a barrier to residential development in this area.

The easterly and northerly sides of the airport extend into San Francisco Bay, and flight patterns have been established in a manner that provides for a maximum number of landings and takeoffs over the bay, thus minimizing flying over residential areas.

At the present time 12 scheduled air carriers, operating domestically and internationally, utilize San Francisco International Airport in rendering service to all parts of the world. They account for a landing and takeoff every 2½ minutes, and handle in excess of 12,000 passengers daily.

These carriers are American Airlines, British Overseas Airways, Flying Tiger Line, Japan Airlines, Pacific Air Lines, Pacific Southwest Airlines, Pan American World Airways, Qantas Empire Airways, Trans World Airlines, United Air Lines, West Coast Airlines, and Western Air Lines.

The Federal Government provides for the processing of international passenger as well as all of the various aids to navigation required for the safe flow of air traffic. The details of our high intensity lighting, approach lights of controllable intensity and instrument landing system will undoubtedly be covered by representatives of the Federal Aviation Administration, as will meteorological conditions and flight patterns. These details will, therefore, not be developed as part of this report.

The storage of aviation fuel on the airport provides for a capacity of 4,800,000 gallons. Present deliveries amount to 84 million gallons per year. Underground hydrant fueling systems have been installed at our gate positions and we have our own docks in the tank farm area which accommodate fuel barges.

The capital investment of San Francisco International Airport as of June 30, 1959, amounted to $55,850,349.49—financed by the city and county of San Francisco through a series of general obligation bond issues.

One facet of the airport's economic impact on the peninsula area is shown in its provision of employment for more than 12,000 persons on a full-time basis, with an annual payroll of $75 million. Based on 1959 population estimates and using percentage figures compiled from a survey in 1956, it has been determined that there are more than 10,000 San Mateo County residents employed at the airport—and of the total $75 million payroll, they account for 76.5 percent, or $57,382,500.

A reflection of the effect on the economy of neighboring cities where airport employees live may be seen in the following payroll distribu-

tion: South San Francisco, $4,762,500; San Bruno/Lomita Park, $4,725,000; Millbrae, $2,145,000; Burlingame, $7,380,000; San Mateo, $11,385,000. The airport payroll for other peninsula cities and towns totals in excess of $26 million. By comparison San Francisco's portion of the payroll is only $17,617,500.

In addition to its economic effect on San Maeto County in terms of payroll, the airport probably represents the greatest concentration of taxable wealth available to the county. For the years 1959–60 the city and county of San Francisco paid $88,354.37 in real estate taxes, a figure that does not reflect at all the much greater amounts paid in taxes on leasehold improvements and equipment by the airport's tenants. More than $25 million has been invested in improvements by tenants, with approximately $9 million having been invested in the fiscal year ended June 30, 1959.

The airport, too, has been an important factor in attracting substantial light industrial establishments in San Mateo County. Investigation of property sales reveals a continuing upward trend in realty values in areas adjacent to the airport.

Thus, it has been with a traditional feeling of partnership and an awareness of the mutuality of its interests with its neighbors in San Mateo County that the city and county of San Francisco has regarded the growing international airport.

The present terminal building was opened on September 1, 1954. Its cost—including subsequent improvements consisting of additional aircraft loading piers and apron areas—was $14 million. The terminal now provides 32 loading gates—positions for all types of aircraft, including transcontinental and intercontinental jets.

So burgeoning was the airport's growth, however, that in 1956—2 years after the terminal building was opened—the people of San Francisco voted a $25 million general obligation bond issue to continue the program of expansion and development—having specifically in mind an answer to the challenge of the looming age of jets.

In connection with the airport's runway configuration I refer to a recent report prepared by Dr. Robert Hornjeff, a member of the American Society of Civil Engineers who is lecturer and research engineer, Institute of Transportation and Traffic Engineering, University of California.

Considered one of the Nation's most prominent consultants in the field of runway planning and construction, Dr. Hornjeff has been this airport's consultant for many years and has made numerous technical reports in connection with our planning. I should like to quote from his recent report, in which the airport's runway facilities are described, and which was used as supporting material concerning the need for extending runway 28L. And I quote from Dr. Hornjeff's report:

There are four runways at the airport. The runway pattern consists of parallel runways on 750-foot centers intersection at 90 degrees. The runway lengths available at this time are as follows:

Runway:	*Paved length (feet)*
10L–28R	9,500
10R–28L	7,130
1R–19L	9,000
1L–19R	7,000

The prevailing winds are from the west and northwest, making the 28 series of runways the prevailing wind direction. The ILS is located on runway 28R. When the winds are calm and the visibility is good, takeoffs are normally made to the north and to the west, and landings from the east. When bad weather sets in, takeoffs can still be made to the north but this is a more complex and time-consuming operation because of potential conflict with departure from Oakland Airport. If the visibility is very poor, landings can only be made on runway 28R. When ceilings are 400 feet and above, runway 10R–28L can also be used for landings because of its close proximity to the ILS glide path. During the summer months the winds in the afternoon are fairly strong from the west and northwest. Under these conditions only the 28 series runways can be used.

This indicates that although there are physically four runways at the airport, not all of the facilities are available for use all of the time.

Mr. Chairman, if I may be allowed to divert from my report for just one moment I would like to say that—there has been some comments made in connection with the management's direction of the use of the runways, and I am willing to testify under oath that I have never directed the FAA control tower to shift the runway takeoffs in order to avoid measurements of noise by any sound experts or adjacent communities or to do anything to deter a committee meeting that was involved in this noise matter. I end my quotes from Dr. Hornjeff's report and return to my statement.

Preliminary plans are being prepared for a second terminal building which will cost approximately $8½ million and will accommodate 16 large jet aircraft. It is anticipated that this facility will be completed by 1963, and it is expected that this and other comprehensive improvements will increase the capacity of the airport's terminal area to accommodate 9 million passengers per year. In 1954 a 45,000 square foot airmail and cargo building was placed into service, and this facility is now being supplemented by two additional cargo buildings which will be dedicated next Tuesday, April 26, 1960, and will provide 74,000 additional square feet of indoor cargo area. In addition, nine aircraft loading positions are being constructed adjacent to that cargo area.

These new facilities will answer a growing need, as can be seen by the combined freight, express, and mail by air which during the fiscal year ended June 30, 1959, amounted to 146,362,220 pounds—more than 20 million pounds in excess of the total for the preceding year.

Pointing up another vital aspect of the airport was its designation on August 13, 1959, as the primary CRAF (civil reserve air fleet) port of aerial entry for the Pacific coast in the event of a national emergency.

In 1957 the airport, poised on the threshold of the age of jets, involved in planning the expenditure of the newly approved bond issue, and realizing the extremely important role which adjacent communities play in its operations and long-range planning, participated in several meetings with South San Francisco to discuss problems which might result from the future operation of commercial jet aircraft.

The first of these meetings was held June 21, 1957, at the request of the city manager of South San Francisco. On October 28, 1957, U.S. Congressman J. Arthur Younger held a meeting of representatives of the city and county of San Francisco, Civil Aeronautics Board, and airline representatives to discuss low-level flying and jet noise as it might affect the surrounding communities.

On November 26, 1957, representatives of the airport and of the aviation industry attended a meeting at South San Francisco City Hall to discuss a report prepared by Dr. Maurice Garbell for South San Francisco.

Over the years the airport had consistently called on the best available experts of the aviation indusrty for advice in its development program. Now these experts were called together again, and, in January of 1958, two further steps resulted:

One, on January 8, 1958, the San Francisco Flight Coordinating Group was formed to function as a coordinating or cooperating agency to work with neighboring communities in an effort to minimize inconvenience resulting from aircraft operations originating at San Francisco International Airport.

This organization represented all facets of aircraft operations and was composed of individuals associated with the Civil Aeronautics Administration, the Airline Polits' Association, the Air Transport Association, and the city and county of San Francisco represented by the airport.

The San Francisco Flight Coordinating Group promptly set up a program of operating procedures for all aircraft, anticipating—although they were still more than a year away—the operation of commercial jet aircraft.

Two, on January 10, 1958, the following policy statement regarding operation of commercial jet aircraft was announced; and I quote:

In the interest of good community relations, and as the partial result of restrictions imposed by some major east coast airports, commercial jet aircraft manufacturers and airline companies have dedicated tremendous sums to the development of sound-suppressing equipment. In view of the good faith and cooperation evidenced by manufacturers and operators, the city and county of San Francisco does not feel it necessary at this time to place any specific restrictions on the operation of jet aircraft at San Francisco International Airport. Inasmuch as to date this facility has not experienced the operation of large commercial jet transportation equipment, it is felt that any restrictions imposed would be premature.

In April of 1959, commercial jet aircraft were put in operation at San Francisco International Airport.

In September of 1959, the air carriers utilizing jet aircraft and serving San Francisco worked with Congressman Younger toward securing Air Force approval to use military airfields for jet training programs. Although the aid obtained was limited and "stopgap" in nature, we are hopeful that, through the continuing efforts of Congressman Younger, more substantial aid for this important program may be obtained.

On December 14, 1959, the city and county of San Francisco submitted to the district airport engineer, Federal Aviation Administration, a request for aid, listing the projects scheduled for construction at San Francisco International Airport during the fiscal year 1960–61. These projects represented a total estimated cost of $9,486,000, with the sponsor's share amounting to $4,352,150 and the Federal share $5,133,823.

The prime project in this application was the extension of runway 28L, fill and pavement. Here the airport had a choice between requesting a westerly extension at a cost of $1,410,000, including replacement of buildings demolished, or an easterly extension at a total

cost estimated to be $3,250,000. Primarily because of the noise problem, it chose the more expensive course.

The extension of this runway constitutes a very practical method of alleviating the noise problem in the most critical South San Francisco and San Bruno areas because it would remove the brake release point for jets 2,370 feet farther away from these areas and would place the westerly end of this runway 5,750 feet from the nearest residential district.

When the Federal Aviation Administration replied to our application, San Francisco International Airport was allotted $848,340 for projects which are vital to the airport's expansion program. However, the allocation completely excluded our prime project—the extension of runway 28L.

The city and county of San Francisco—willing to postpone the other worthy projects which were granted aid—voluntarily requested the Federal Aviation Administration to reconsider our application and to provide the $1,758,000 needed for the extension of 28–L. This request for reconsideration was supported by the Board of Supervisors of San Mateo County, by the sound abatement committee—which had just been organized—by the various communities to which the extension of runway 28–L would constitute a relief measure from jet noise, and by Congressman Younger who intervened on our behalf and requested the Administrator to grant our request for reconsideration.

On April 14, 1960, the advice was received from the Federal Aviation Administration that the 1961 Federal-aid airport program for San Francisco International Airport had been revised to conform to the extension of 28–L to 9,530 feet with appurtenant holding aprons, parallel taxiway, and lighting.

This meant that although the $848,340 originally allocated to other projects had been reallocated to the extension of 28–L, the Federal share for this project is still $909,660 short of the estimated need of $1,758,000.

We are indeed gratified to know that Congressman Younger has agreed to continue to press for the allocation for 1960–61 of the balance of the Federal moneys needed to accomplish this project, and that he will join us in Washington at an early date to discuss this important matter further with the Administrator.

In November of 1959, a San Francisco International Airport Sound Abatement Committee was formed, with Mr. Don Fazackerley, then president of the Public Utilities Commission of the City and County of San Francisco, as chairman.

This committee, composed of representatives of the aviation industry, the airlines, the Federal Government, and the airport, agreed that its sole objective was to plan and to conduct a positive program to minimize noise resulting from airport operations.

Subsequently a sound abatement center was established at the airport.

I am sure that Mr. Fazackerley, who is present, will make a comprehensive statement covering the program conducted by the sound abatement committee following these remarks.

Pure jet scheduled landings and takeoffs at San Francisco International Airport in February 1960 were 1,162, as compared with

374 in July 1959. Training landings and takeoffs were 1,264 in February 1960, as compared with 376 in July 1959.

The frequency of jet aircraft operations at San Francisco International Airport is expected to increase considerably within the next 90 days, and problems arising out of noise annoyance to adjacent communities can be expected to accompany this acceleration of jet service.

As I have stated, the city and county of San Francisco through its international airport has joined wholeheartedly with other participants of the sound abatement committee in dedicating our best efforts to the alleviation of this condition.

On behalf of the city and county of San Francisco and of the San Francisco International Airport, I wish to express our appreciation for the interest and concern shown by you gentlemen in conducting this hearing and for the opportunity of appearing before you. All of us who share this problem will indeed be grateful for any aid that may be forthcoming.

Thank you very much.

Mr. MOULDER. Thank you, Mr. Brown.

Mr. Fazackerley.

STATEMENT OF DON FAZACKERLEY, PRESIDENT, BOARD OF TRUSTEES, SAN FRANCISCO SOUND ABATEMENT COMMITTEE

Mr. FAZACKERLEY. Thank you. Mr. Chairman, honorable Members of Congress of the United States, in the interest of time, and clarity of the record I have submitted to you each and to your secretary copies of my text. I will not deviate from the text. However, some late typographical changes were made, and therefore I will turn my original text over to your recorder.

My name is Don Fazackerley; I am the president of the board of trustees of the San Francisco Sound Abatement Committee. I am also a member of the Public Utilities Commission of the City and County of San Francisco, which is the developer, and, in effect, the landlord at the airport. However, I wish to emphasize that I am speaking today as a representative of all of the agencies which comprise the sound abatement committee.

The San Francisco Sound Abatement Committee is an organization composed of representatives of the several American-flag and foreign airlines operating from the San Francisco International Airport; the Air Transport Association; the Air Line Pilots' Association; the U.S. Coast Guard; the Federal Aviation Agency, and the management of the San Francisco International Airport.

The committee was organized during November 1959, and was formalized into a corporate entity early in 1960.

The San Francisco Sound Abatement Committee was the outgrowth of the San Francisco Flight Coordinating Group. This group has been composed of flight operations representatives of the airlines operating from the airport. Its function was to assure safe and economical operating procedures for arriving and departing aircraft. As jet aircraft operations became more frequent at the airport, this group recognized that the scope of the sound problem which was brought into being by the advent of the turbine-powered aircraft was such as to

make it desirable to have an organization with a fuller representation, in order that such an organization would have greater authority and thus be more effective in lessening the problem brought about by aircraft sound.

Thus, the sound abatement committee is a logical culmination of earlier efforts aimed at assuring safe aircraft operating procedures at the San Francisco International Airport, and, concurrently, has undertaken to develop such procedures in a manner which will cause the least inconvenience to residents in this community, while still assuring safe operating practices.

The specific objectives of the sound abatement committee are—

(1) To serve as a collection agency for complaints attributed to aircraft, and to determine the nature of such complaints;

(2) To identify the areas which are affected by aircraft sound;

(3) To determine how or in what manner the sound problems can be lessened or resolved, and

(4) To take such positive actions to reduce or eliminate the problem as fall within the purview or ability of membership of the committee.

In order to serve the community better, and to implement the program conceived by the sound abatement committee, it employed a full-time director, a secretary, and opened a sound abatement center as of the 1st of February of this year.

Wide publicity was given to the activation of this office. With the cooperation of the several newspapers serving this community, residents were invited to make known to the center instances where aircraft sound was bothersome to them. Such calls were received on a 24-hour basis. They were recorded and classified.

Where possible, personal calls were then made on the people making complaints, in order to determine the situation in their immediate neighborhood, and to acquaint the complainants with the nature of the sound abatement program.

By pinpointing the location of each complaint on an area map, problem areas were determined. This was done in order that the effects of terrain, wind direction and velocity, as well as other contributory elements to the problem, could be analyzed in the interest of finding practical solutions.

During the first full week of operation of the office of the sound abatement center, the week ending March 4, some 135 complaints were registered.

As the nature of the disturbance was specifically recognized, the sound abatement committee was able to take certain measures which lessened to a degree the noise disturbance. This has been reflected in the decreasing number of complaints received by the sound abatement center. For example, during the week ending April 15 only 11 complaints were registered. Thus you can see there has been a dramatic reduction in the number of complaints registered since the activation of the center.

Mr. MOULDER. Let's have order in the hearing room. This is the first experience along this line. I want to compliment the people who have been here; you have been most cooperative in aiding us in the conduct of the hearing, so let's keep it that way.

Mr. FAZACKERLEY. Now, when complaints are received, they are reviewed by the center's technical committee for the purpose of determining what measures can be taken to eliminate, or at least to lessen the discomfort of complainants.

Examples of measures which have been taken as a result of these reviews include—much of this is new material; I would urge your careful attention:

A reexamination of the preferential runway procedures which serve as a guide to airline pilots in their choice of use of runways under varying conditions of wind velocity and direction, as well as ceiling and visibility. As a consequence of this review, the preferential runway procedures have been modified. While only minor modifications could be made, these will be found helpful in reducing instances where aircraft noise is a problem.

In attacking this problem of preferential runways, the airlines, on a voluntary basis, are following a proposal that aircraft taking off between the hours of 9:30 p.m. and 7:30 a.m., under normal circumstances, not use the south 1,100 feet of runway 1–R, except where a northerly wind of 13 knots or greater prevails. In instances where such wind exists, safety would dictate using runway 1–R in order to avoid the hazards of crosswind takeoffs.

Parenthetically, although the airlines voluntarily are cooperating in a local preferential runway procedure, it should be recognized that the authority for establishing such procedures rests with the Federal Aviation Agency. The FAA has recently assumed jurisdiction over the establishment of such preferential runway procedures at all major airports throughout the United States, including San Francisco.

A second example of measures taken by the sound abatement committee, through its membership, has been the modification of previous aircraft climb-out procedures, modifications which have the effect of assuring higher altitude for aircraft at the time they are flying over residential areas.

A third example has been the cooperative establishment by all the airlines of ground runup procedures which assure that when aircraft engines must be run up, the runups are undertaken at locations as far removed from residential areas as the physical confines of the airport will permit.

In a similar vein, the sound abatement committee members have given all-out support to the airport management's proposals for the extension of runways. Extension of runways, as proposed, would assure that aircraft, on their climbout, would be at a higher altitude over residential areas in the vicinity of the airport, and thus would create less of a noise problem.

The foregoing measures obviously are not going to eliminate entirely the noise problem brought about by the technical advent of the jet age. They are helpful, however, in lessening the degree of the problem. It seems apparent to us, however, that ultimate solution to aircraft sound lies in three major areas.

The first area which holds promise is that of technological or engineering improvement. Aircraft and engine manufacturers for years have been working to minimize the sound output of aircraft engines and are continuing their research. To date, each of the major companies, such as Allison Division of General Motors, Pratt & Whitney

Aircraft; Boeing Aircraft Co., Douglas Aircraft Co., Convair, Lockheed Aircraft Corp., and others has poured millions of dollars into engineering studies aimed at reducing to a satisfactory level the sound which emanates from turbine-powered aircraft.

That we are meeting here today attests to the fact that their efforts as yet have not been wholly satisfactory. Nevertheless, we should recognize that great strides in the right direction have been made. One only has to be in the vicinity of a military base, where J–57 and J–75 military turbine engines are operating without sound suppressors, to realize that the commercial jet aircraft in operation today are appreciably more quiet and less bothersome than are their military counterparts.

The reduction in sound which has been achieved, limited as it is, has been accomplished only at a tremendously high operating cost to the airlines. Efficiency of the commercial engines in use at the present time has been reduced from 2 to 3 percent by the suppressors now in use.

Translated into understandable terms, this means that the thrust of the aircraft has been reduced by this percentage, and that kerosene consumption has been increased by a comparable amount. Whereas, 2 to 3 percent may seem small, it represents an added expense to the airline industry of many millions of dollars annually. Thus, the aircraft manufacturers continue to have a great incentive to find a solution to the present sound output of turbine-powered aircraft.

The second area which holds promise of bringing relief to communities in the neighborhood of the San Francisco International Airport is for airport runways to be extended progressively farther into the bay, and thus away from community centers.

Congressman Younger is cognizant of the benefit to be derived from such action. We understand he has been successful in securing Federal Aviation Agency approval of $848,340 of the $1,758,000 which San Francisco had requested from the Federal Government as the latter's share in lengthening runway 28–L.

We trust that through the action of your honorable committee, the Federal Government will see the desirability of granting, from FAA discretionary funds, the full amount required to lengthen runway 28–L to the desired length of 9,530 feet.

The lengthening of this particular runway, however, should be considered as only one of several steps in the ultimate development of the airport which would move its operating border eastward into the bay, and away from residential communities.

The third area which offers great potential, and one which must be activated if satisfactory solutions to the noise problem are to be found, lies in more enlightened community planing. In this respect, it is unfortunate that there appears to have been little forward thinking in the planning of communities in the vicinity of the San Francisco International Airport. The airport itself has existed in its present location for more than 30 years. Its growth, concurrent with the growth of commercial air transportation, has been anticipated. The citizens of San Francisco, years in advance, have approved bond issues to permit expansion of the airport and its facilities.

This long-range planning, however, on the part of the San Francisco Airport has not been accompanied by any noticeable counterpart of planning by the communities in the vicinity of the airport. Although the airport has acquired property exclusively for protective purposes, and currently holds a sizable strip of land on the west side of the Bayshore Freeway for this purpose, the communities adjacent to the airport have, in some instances, permitted residential building contiguous to the airport property, rather than restrict the adjacent area use to light industrial activities which are not bothered by aircraft sound.

May I cite some examples of recent instances where little, if any, recognition has been given to the existence of the airport and the nature of its activities.

One is the recent move to acquire property for a school on the site of the former naval station in San Bruno. The site for the proposed school is located within the approach and takeoff pattern for aircraft using one of the airport's major and busiest runways. We object to this location and from remarks made this morning it is temporarily postponed as a new school site.

A second example is the city of Millbrae's recent rezoning of an area immediately opposite the end of runway 1–R for apartment house purposes.

It is our understanding that plans are now being completed for the construction of a multiple-story apartment house in this location; yet, simultaneously, residents in the immediate vicinity of the planned apartments in Bayside Manor are complaining of aircraft noise.

In another case, city officials of Millbrae, while expressing concern for the safety of residents in Bayside Manor, have concurrently suggested to airport management that the buffer zone of land owned by the airport separating runway 1–R from Bayside Manor be used as a children's play area, where those using the proposed park would be even closer to aircraft operations.

An additional example of community planning which apparently has failed to take into consideration present and future aircraft operating patterns is the Brewer Island development. We are told that Brewer Island, which is located under the present approach pattern normally used by airliners coming into the San Francisco Airport, is to be developed as a balanced community of light industry and family residences.

In order to avoid inconvenience to existing residential areas, the approach pattern for aircraft coming into the San Francisco Airport has for many years been over the bay, crossing Brewer Island at the western end of the San Mateo Bridge, and thus directly to the San Francisco Airport. Up to now, this approach pattern has created no problems for anyone, for no residences were in this approach pattern. Yet, the current proposal for the development of Brewer Island envisions the construction of private dwellings intended to accommodate some 40,000 people, which is about the total population of the city of South San Francisco from whom we heard this morning.

With the larger planes and more powerful engines that are expected a decade from now, even though great strides are made in sound suppression, it is apparent that a residential community so close to aircraft in flight is bound to be a problem area. Would it not be in-

finitely better to restrict the use of this land in its orderly development to commercial or industrial purposes, which would not be disturbed by approaching aircraft serving the entire bay area, and, in fact, all of northern California.

Although we firmly believe the welfare of a community can be enhanced by orderly zoning wherein industry would be encouraged to locate in the vicinity of the airport and its approach patterns, we believe it important to emphasize that airport developments have not deflated the value of real estate in this or similar communities.

This is borne out by the findings of Herman O. Walther, a nationally known member of the American Institute of Real Estate Appraisers. In a speech delivered by Mr. Walther on the subject of "Impact of the Jet Age on Real Estate," he concluded with the statement:

> It is my considered opinion that the jet age will tend to increase real estate activities in the vicinity of airports and will have no adverse effect upon residential properties in the vicinity. By this I do not mean that we recommend building residences close to airports. As a matter of fact, we recommend the opposite. We suggest that there be ample clear zone and that the territory beyond the clear zone be improved with industrial property; but if the residential property is already there, or if the proper steps have not been taken, we believe that people can purchase property within a reasonable distance of the airports with confidence.

Now, pertinent to Mr. Walther's conclusion is a study undertaken within the past few months to check his findings and to determine whether they are still valid in 1960. The field work for this study has just been completed, and the results, although not yet published, completely substantiate his earlier statements. His findings are important to us, for residential areas in Bayside Manor, Millbrae, Burlingame, San Bruno and South San Francisco, from where aircraft sound complaints have been most numerous, were among those he evaluated in the field study. He evaluated the sound in the trouble areas from our area maps for the benefit of Mr. Ralph F. Clark who is the resident tracer and doing the field work for Mr. Walther.

From these findings, Mr. Walther has now concluded that major airports enhance property values in their vicinity. This is true here at San Francisco, as it is at other major airports throughout the United States.

Then too, airports serve as a source of steady employment for thousands of people and produce a sizable revenue for the communities in which they are located. As such, they help materially in underwriting the expense of schools and other necessary governmental services. The San Francisco Airport, its property and aircraft are the largest single source of tax revenue to the communities in its immediate vicinity.

Apart from the economic value of the airport to communities in this area, the sound abatement committee recognizes full well that some people in this area are presently being inconvenienced by operations at the airport. The sound abatement committee is sympathetic to these people and the problems they are enduring. It assumes its full share of responsibility for finding satisfactory solutions to this very complex problem.

The sound abatement committee, however, believes that other groups should likewise assume their share of responsibility in working to-

ward an orderly solution. We are confident that if the cooperation and best efforts of all concerned are directed toward finding such orderly solutions to abate aircraft sound, they will be found.

Thank you, gentlemen, for this opportunity of appearing before you and for your interest, which implies your desire to help find answers to this common problem.

Mr. MOULDER. Mr. Fazackerley, we want to thank you for your very sound and interesting presentation.

Now, as the Chair originally announced, and after conference with the members of the committee, in the interest of a fair hearing and in order to learn all of the facts and to give an opportunity to the people interested to interrogate those present, we have decided there will be questions and answers. In order to answer questions which we are unable to answer we would like to have Mr. Brown, Mr. Fazackerly, and also Mr. Thomas, Director of the Bureau of Air Traffic Management, representing the Federal Aviation Agency, and also Mr. Hand, and General Preuss, and those gentlemen from the other agencies—if you can make arrangements for the seats to be arranged here—to be seated here in front of the committee where they will first be interrogated by the members of the committee and afterward interrogated by anyone present in the hearing room.

In connection with this, I hope that I will have everybody's cooperation in the conduct of a hearing of this nature because it is most difficult to preserve order in this manner. After members of the committee have interrogated the gentlemen whose names I have mentioned, members of the press will be accorded the same privilege.

After you are recognized by me, state your name and ask the question.

As I stated, we expect to close the hearings, I would say, about 1 hour from now, and we want to conduct these hearings in open and above-board manner where all public officials can be interrogated by the people whose interests are affected. We, of course, subject ourselves to questioning, too, if anyone wants to ask the members of this committee any questions. We will open the hearing on interrogation in this form and this manner by calling upon the members of the committee.

I will first call upon Mr. Brock of Nebraska.

Mr. BROCK. Thank you, Mr. Chairman. I do want to say that General Preuss is a very new member of the FAA, a member of 3 days standing, so if you are directing your question to General Preuss please realize that he is only a 3-day-old baby.

General PREUSS. Thank you very much.

Mr. BROCK. I would like to direct a question to Dave Thomas, Director of the Bureau of Air Traffic Management.

Mr. Thomas, this morning it was stated that various schools and churches were interrupted in their educational processes and in their religious services. I imagine you saw the map this morning, Mr. Thomas, and could you state whether or not under FAA regulations what the altitude should be in those various areas. I realize that the altitude is at variance because of the calm condition on some days, but there are regulations as to the altitude in certain aspects of a takeoff flight; are there not, Mr. Thomas?

Mr. THOMAS. Mr. Brock, I think it would be very unfair if I tried to give a specific answer because I did not follow the map that closely from where I was seated this morning, and I am not sufficiently aware, although there are people here familiar with the San Francisco area who can answer specifically. I can say, generally, that during climb there is no specific regulation except to climb as rapidly as possible. The climb-out procedures have been discussed by several of your witnesses this morning, and there is a meeting today in Washington, D.C. with FAA to try to standardize the procedures for each type of aircraft, each type of equipment, to get them up as rapidly as possible. We hope to reach the minimum altitude, at least 1,500 feet, as rapidly as possible. I am sorry that I can't be specific in regard to each building that was pointed out this morning.

Mr. BROCK. Thank you, Mr. Thomas. I further want to state, Mr. Chairman, that we held a hearing a year ago in the vicinity of Congressman Derounian's district and the district of Congressman Bosch of New York, Idlewild Airport, and we did have, and did secure, and were very happy with the cooperation of the FAA. They made some procedural changes in flight patterns and in recommending certain turns, and it was very helpful to the people of Idlewild Airport vicinity. I am sure that I speak for the committee when I say the FAA will no doubt be most helpful to you in any manner they can. That is all I have, Mr. Chairman.

Mr. MOULDER. Mr. Derounian.

Mr. DEROUNIAN. Mr. Chairman, if it will make the people here feel any better I come from the Idlewild area where houses practically back up on the airport on three sides. You have a very serious problem, but we have one twice as serious, so there are a lot of people in the same boat with you.

I'd like to ask Commissioner Fazackerley a question about the city of Millbrae's recent rezoning of the area at the end of runway 1–R for the apartment house purposes? How definite are you on that, Commissioner, when did it happen, and how did it happen? Or perhaps Mayor Witmer could explain.

Mayor CHURCH. Mr. Chairman, I am Mayor Church. The Honorable Mr. Witmer cannot be here this afternoon. I am afraid a misstatement was made. I would like to clarify a point for the record. This land has been zoned R–3 since the city of Millbrae was incorporated in the year 1948. I would further like to say that we have, on numerous occasions, asked the airport people to send their engineers to meetings for consideration on zoning matters, but we have not had the honor of their presence.

Mr. DEROUNIAN. Well, now, Mr. Church, continuing this, does the builder not realize that this is right at the threshold of the very runway we heard all these complaints about this morning?

Mayor CHURCH. There has been no action taken by any developer and the land is vacant and zoned R–3, that is true, but at the time there was some talk about construction, about a year ago, the extension of the north-south runway had not been backed up to the Bayshore and was not the critical problem that it is today.

Mr. DEROUNIAN. So you would say in all probability that this apartment will not be built under the present circumstances?

Mayor CHURCH. Well, I couldn't speak for the developer. We don't own—the city of Millbrae does not own the property. All we do is zone it.

Mr. DEROUNIAN. Yes, I know. We have enough problems today. I just didn't want to add to them in the immediate future.

Mayor CHURCH. I agree with you, but I just wanted to clarify that point. There has been no change in zoning.

Mr. MOULDER. Now, as I said before, I hope that you will be most cooperative with me as the presiding officer, to address your question to me and ask for recognition and then we will proceed in an orderly manner.

Mr. Fazackerley.

Mr. FAZACKERLEY. I would like to ask through the chairman and Congressman Derounian if a further clarification of our statement might be made by the superintendent of operations, San Francisco Airport, who participated in these discussions?

Mr. DEROUNIAN. Well, I would like an explanation from somebody.

Mr. MESSERSCHMITT. I am Harold Messerschmitt, superintendent of airport operations. As long as 4 or 5 years ago I appeared before the planning commission of the city of Millbrae to encourage or support the zoning of the Iberian property, and I would like to find out if that is the property under consideration.

Mayor CHURCH. I believe that is the property.

Mr. MESSERSCHMITT. All right, the Iberian property. We were encouraging, at that time, that that be made industrial and not residential. We pointed out that it was directly under the proposed runway that was being developed at that time. The owner of the property, as I recall, was seeking to have it zoned as industrial, but the people in the community objected to the zoning or the development of industrial property adjacent to their residential property. Recently, some 6 or 7 weeks ago, I pointed out, too, when Mayor Witmer was in our office with Mr. Brown, that we were concerned as to what was going on there. We expressed the feeling that it was unfortunate that Millbrae was only incorporated some 12 years ago, that had they been incorporated and better organized at an earlier date they would have taken into consideration the development of the airport in their zoning. And, at that time, he mentioned to me that, because of the protests of the people residing in the area, that that property was about to be rezoned as residential, and that is property lying directly on an extension of our 1–R runway and closer than any other residential property to the airport.

Mr. MOULDER. Any questions, Mr. Derounian? Mr. Younger?

Mr. YOUNGER. Mr. Chairman, in view of some of the other hearings, I want to say that I am tremendously impressed with the way this hearing has transpired, the valuable information that has been given, and the conduct of our people. I'd like to say, Mr. Chairman, I am very proud of our people and very proud of their conduct under rather trying circumstances because this is an emotional question, and they have certainly responded in excellent fashion, as I was sure they would.

I have only one question of either Mr. Thomas or from Mr. Hand, and that is this: How long would Runway 28 have to be extended so that in a takeoff toward the "Gap" the plane could turn, make a right angle turn, and go no further north than the highway?

Mr. MOULDER. Mr. Thomas.

Mr. THOMAS. Mr. Chairman, I will have to refer this question, if it can be answered at this hearing. I am not sure that we could answer. If I may, may I ask Mr. Hand if he does have that answer?

Mr. MOULDER. Mr. Hand?

Mr. HAND. This particular problem involves a variety of operating conditions, and I don't believe a correct answer could be made at this time.

Mr. YOUNGER. Will you supply for the committee that information, because I gather from the remarks that have been made here today we are sure of two things. One is on account of the prevailing wind the majority of the takeoffs will have to be in that direction, so that if that is true then to me the only relief that can be granted would be to extend this runway out far enough so that the takeoff can come up and turn to the right and not cross Bayshore but turn out over the bay to the north. To me that seems to be about the most logical solution that we can have.

Mr. THOMAS. Mr. Younger, we will supply that information. From just a casual look at the map it looks like it may be considerable because we are dealing with heavily loaded aircraft, and we are dealing with a turn here of, I'd say, 10 degrees, and then we have to project this turn to see how to get them back on course, so I would like—not like to give an off-the-cuff answer but give you an accurate engineering study.

Mr. YOUNGER. That is all, Mr. Chairman.

Mr. MOULDER. Mr. Thomas, I wanted to ask this question. Of course, we all realize that with the rapid development of the aircraft transport traffic in the air is going to be as congested as highway traffic. Has the Federal Aviation Administration made a study formulating recommendations to Congress as to the greater need for additional airport space or separation of jet traffic from that of propeller-type aircraft?

Mr. THOMAS. Mr. Chairman, I know of no study in those specific terms that has been made. There has been a great deal of work, as you know, in the Federal Aircraft problem, but not a specific study, sir.

Mr. MOULDER. Now, as I said in the beginning, we, the entire committee, all members of the committee, wish to open this up to any other person who wishes to interrogate any of the officials, including ourselves as public officials, any interrogation. You will be recognized first, state your name, address the chairman, and direct your question, naming the person to whom you wish to ask the question.

Mr. Ryan?

Mr. RYAN. Leo Ryan of South San Francisco.

I am not sure to whom to address the question, but I would like to have some kind of comment made on the alternative to Congressman Younger's question. If runway 28 could be extended far enough out into the bay, without limit, in the theoretical sense, it would solve all our problems because the plane could take off toward Millbrae and yet make a turn, going over the water without harming anyone, San Bruno or South San Francisco. What are the other possibilities, for example, the position of South San Francisco and in regard to their attitude, what is the approximate cost, if it can be approximated even, of extending runway 1–R out far enough so this, in turn, could relieve

the problem also, because I think it is part of the same thing. Involved in this is, of course, that seaplane area which would be encroached upon, I believe. So I think the question involves Federal comment, but it would also involve comment by the city of San Francisco both financially and from control of the seaplane area.

Mr. MOULDER. Does anyone wish to answer that question? Mr. Brown?

Mr. BROWN. Mr. Chairman, Belford Brown, airport manager.

In connection with the extension of the 19 series first let me say that the channel is probably not a factor involved, other than a truly economical factor based upon the depth of that channel. There have been studies by the U.S. Engineers in connection with the changing of that channel for the bringing in of fuel barges, and I do not think that normally would be—other than the amount of money that would be involved and the depth of the channel—a deterrent to that project.

Also I would like to say, although I think I will answer it from an economic standpoint I want it perfectly well understood there are other aspects of this than the economic aspect. I have been informed by my engineers approximately $2,500 per linear foot would be the cost to extend that runway, about $2½ million for every thousand feet.

Mr. MOULDER. The gentleman——

Mr. BRIDGEWATER. My name is Joseph Bridgewater from Millbrae. I was just wondering if the committee is aware of a few basic facts. No. 1, in reference to our homes being built under the Wartime Housing Act, I wonder if they are aware that these homes were built under very stringent FHA regulations, that these homes would meet all of the requirements of the present national building code and of the present uniform building code which is used extensively throughout California and all Western States.

Also, by referring to your map there, you will notice that Highway 101, not the bypass but Highway 101, the name of it is El Camino Real, which is "The King's Highway," that this is a historical highway. That this area was developed, I would say approximately, in 1880, with some developments, such as Mills Estates, the Mills Iron Foundry & Smelter, in this area at that particular time, and certainly around the turn of the century, and also that although Millbrae was incorporated in 1948 that these homes in this area were in existence a long time prior to that. I feel——

Mr. MOULDER. I think all of that is in the record with the exception of some—do you have a question to ask?

Mr. BRIDGEWATER. Well, I was just wondering primarily if the committee was advised of the fact this development has been here back into the 1880's.

Mr. MOULDER. That has been revealed by the hearing. That is in the record. Any questions from any other person? Mrs. Hammon?

Mrs. HAMMON. Mr. Chairman, I am Mrs. James Hammon, of South San Francisco. I would like to direct two questions to Mr. Brown.

First, you mentioned, Mr. Brown, of circumstances of takeoffs and landings of approximately 2½-minute intervals. At the present, what plans in the future with the licensing of more aircraft do you have in regard to any acceleration, or how much further can the airport accommodate such things? In other words, are we going to get

to a circumstance of takeoffs and landings occurring every minute, or just what is this condition?

Mr. BROWN. Mr. Chairman, Mrs. Hammon, I believe that is a technical question which should properly be answered by the Federal Aviation Agency. In connection with the segregation of traffic, all of the movements in the air, on the airport, taking off and coming into the airport, are regulated by the Federal Aviation Administration, and the technological data which will be developed and is being developed will determine that—the capacity that the airport will eventually have. And I am afraid that that question I would have to refer to the Federal Aviation Agency.

Mrs. HAMMON. Fine. May I ask one further question, please?

Mr. MOULDER. Is the question addressed to Mr. Brown?

Mrs. HAMMON. Yes; I assume he would be the gentleman to answer this. I wonder if—I realize he stated he cannot answer my question regarding the time element—however, if in the near future there are additional aircraft going and coming over the area—we also realize the lengthening of runways of this nature take a great deal of time—is there any immediate relief that could be provided to all the residents in the area?

Mr. MOULDER. May I qualify your question? You mean by changing flight patterns and other actions it will be taken under the supervision——

Mrs. HAMMON. Well, I don't feel qualified to know how this would have to be handled.

Mr. MOULDER. Well, I think that is your question.

Mrs. HAMMON. But I just wonder if there is any immediate relief prior to the lengthening of these runways that could be obtained for the problem or difficulties at the moment.

Mr. BROWN. Mr. Chairman, Mrs. Hammon, the only thing I can say is that in connection with conversations that took place this morning in connection with a sound barrier at the end of runway 1–R—to begin with, I would like to assure you that that fence was not put up for any purpose other than to keep the water and smoke from the water injection from the engine off the Bayshore Highway. It was not intended that at any time, it was to alleviate the noise condition. Our engineers are working and have been working for some time in connection with this fencing or putting up a wall in that particular area.

Again, it gets very deeply involved in the technical aspects of safety of operation, which I am sure you can see, that if a 50-foot wall or 60-foot wall is put at the end of that runway the glide slope coming into that runway would mean the threshold would go further out toward the bay.

Again, this is a matter which has never been experienced before in any other airport, and it involves a safety measure as to the use of that as a runway. And this again—I don't mean to avoid your question, but it does get into the technical aspect.

We are looking into this phase of the problem and we have been. As we have written to Mayor Witmer and the city of Millbrae, we are continuing to evaluate and study this continually. There are meetings continually of the technical committee which is composed of the topflight technical men in the Federal Aviation Agency—men who are sitting in front of me now—in this region that are meeting with us in attempting to find these answers.

I wish I could say there is immediate relief some way, but I can't say it because I don't really know. Until such time as the manufacturers build an engine that will not be noisy we have problems that are going to exist.

Mr. MOULDER. Mrs. Hammon. Pardon me, Mr. Younger.

Mr. YOUNGER. On this same subject, before we leave it, I'd like to call on Mr. Frank Ingersoll, who is an attorney, and is acting for Mr. Thompson, attorney for the city of Millbrae, and who is out of the city.

Have you, through your consultation with any of the experts any information in regard to the cost of a wall that would give relief to the Bayside Manor?

Mr. INGERSOLL. Well, Mr. Younger, I don't have the information myself, but Mr. Piatrasanta, who did counsel with us to some extent, and Dr. Garbell, I believe, who are both quite familiar with this and done quite a bit of work on it, have information on this subject, and I think that question would be asked to you, Doctor.

Mr. YOUNGER. What would your estimate be of the height and cost of a barrier there?

Dr. GARBELL. The height would be, well, within the base of the proper zones prescribed by, I believe it is, TATSO 18–A, so this is not a wall sticking up into the approach zones by any means. I would under no circumstances propose a wall sticking up into the approach zone. I think that answers the question of the height. It would not be a wall anyway. It is a solution that is so obvious in another field of aerodynamics that everybody will say it's obvious after it is shown. The same thing is being used elsewhere.

Mr. YOUNGER. And the cost?

Dr. GARBELL. The cost, I would say, well, this is a terribly wild guess but it will be more than $10,000 and less than a million dollars. But I would say, by that I mean, gentlemen, immediately somewhere in the area of $80,000 to $100,000.

Mr. YOUNGER. That is all.

Mr. MOUEDER. Mrs. Hammon, do you want——

Mrs. HAMMON. Yes, please, sir. Excuse me for taking up so much of your time. I, perhaps, did not clarify my question directed to Mr. Brown.

Our problem in the area where I live is not the problem of the take-off noise as exists in the Bayside Manor. We are the people that suffer from the noise as the plane roars over the area. Now, what I was wondering, more in the line of a question, is there any immediate relief, say, in a somewhat lighter loading of those planes or some manner of gaining more altitude thus decreasing the noise element by the fact that they are higher when passing over our residences?

Mr. MOULDER. Mr. Brown.

Mr. BROWN. Mr. Chairman, Mrs. Hammon, again we are getting into the field of economics, and economics is something which is out of the jurisdiction and authorization of the airport manager or the operations and administrations of the airport. What you are referring to, in all probability, could be done by the airlines, off-loading, so to speak, and making lighter loads. This imposes upon the airlines that are operating and paying rent into the San Francisco International Airport, it imposes a restriction on them which puts us in a very difficult position competitively with Los Angeles and with Oak-

land Airports in this connection with the full utilization of our airport as an international and major airport in the Nation. It could be done. It is asking, of course, again the airlines who have already taken some economic restrictions in connection with the purchase of these planes in the loss of thrust on suppression. Now, where the breaking point comes, again it is out of my jurisdiction. There certainly are ways of off-loading that would require and allow those jets to go out lighter and get higher. It would then put a restriction on the carriers, and in turn make us a secondary airport.

Mr. MOULDER. May I ask one question: Of course, I realize that your guideline is safety first. Now, when the safety factors are equal, and where it is a question of convenience versus the sound and the problem that arises here, what flight pattern is followed? I mean as far as your rules of pattern flying?

Mr. BROWN. We have established and on file with the FAA a preferential runway system which is based upon wind conditions and based upon the factors of weather and safety which provides for, if possible, takeoffs from the 10 series runway to the south. This is not used at great length for the simple reason that the predominance of our traffic is with and from the city of Los Angeles and puts the burden on incoming traffic. If the flights go directly out they don't conflict in this practice.

Mr. MOULDER. I know you have a complicated problem but is every effort being made by your management there in conferences with the airlines and their pilots to avoid these noises where it doesn't affect safety?

Mr. BROWN. Absolutely, sir. We are in constant conference with them and doing everything in our power in that regard.

Mr. MOULDER. Now this gentleman [indicating a gentleman at the press table].

MEMBER OF THE PRESS. I want to ask a question of Dr. Garbell. He said that—he said something that this would not be a wall, speaking of a sound barrier. What does he mean? Is there some electronic device, atom, or what?

Mr. MOULDER. That is a good question. I didn't understand your answer.

Dr. GARBELL. It is no secret weapon. It is just a combination of suitably shaped aerodynamic and deadening surfaces.

MEMBER OF THE PRESS. In what form?

Mr. MOULDER. The question was asked about the height of it, and that question wasn't answered.

Dr. GARBELL. Yes; the height is within the bottom of the approach slope.

Mr. DEROUNIAN. What is it, a fence or box?

Dr. GARBELL. Let's call it a fence, basically, and may be recognized as such. To answer another remark that was made to the Chair, the question was made about the cost of——

Mr. MOULDER. Let's get this question ironed out.

MEMBER OF THE PRESS. I still don't understand. Could you give us an approximation of the height above the runway? Would it amount to that portion of the jet pods of a Boeing 707 or Boeing DC–8?

Mr. MOULDER. This gentleman back here. What is your question?

Dr. GARBELL. May I? About one question, the limit of cost?

Mr. MOULDER. We are limited on time here, really, and just want to get the questions, Dr. Garbell.

VOICE FROM THE AUDIENCE. Very briefly, would you outline why a Boeing 707 or DC–8 climbs to gain altitude right after takeoff instead of climbing shallower to gain speed? The question is directed to Mr. Menter.

Mr. MENTER. That costs $600,000 a year for United Air Lines alone, just to give what it costs the airlines to cooperate.

Mr. NOONAN. John Noonan, city attorney of South San Francisco.

Mr. MOULDER. You are John Noonan?

Mr. NOONAN. Yes, sir. The committee's mind, I am convinced, is open, and for the first time I think in South San Francisco we see an opportunity for a clear wind for the people of the area. I have to preface a few remarks, if I am not out of order, but I detect again in the airport this reluctance to open the mind. Mr. Brown has said—and I will ask him a question right after this—he has collected the best brains in the industry to solve the problem, and his summation would be that there would be a 60-foot wall in answer to a man who said he would put a wall up at reasonable cost. I would ask this question then: Will San Francisco retain this other and best brain who has promised a result they cannot produce, a result for $78,000, the chief components of which can be in in 90 days and give relief to people who have been suffering for 3 years now, instead of taking from him piecemeal. Will they retain him and have relief within 90 days? Will they retain this other——

Mr. MOULDER. Thank you, Mr. Noonan.

Mr. CARPENTER. Richard Carpenter, Millbrae. I'd like to—I am very happy. I almost made a very bad mistake. I have been trying to sell my home down in Bayside Manor, and I understand that it is going to improve in value, and I almost lost quite a bit of money on it. Is it the cracks in the walls?

Have you from the airport made scientific evaluation of the noise and vibration problems in that area? Why don't you invite support of your sound abatement committee? Why haven't you invited the city councils around the area?

Mr. MOULDER. That is your question? Let's not have argument. He has asked a question. Mr. Fazackerley?

Mr. FAZACKERLEY. The answer to the first question—I take it there are two. I did not make the statement that I, personally, evaluated the real estate in Bayside Manor or any other subdivision. This is not my business. I am in another field entirely.

The statement I was quoting was that of Mr. Herman Walther, who is a recognized member of the American Real Estate Appraisers, through a field study he recently completed which is in the hands of Mr. Ralph Clark who personally visited and evaluated market and sales conditions in Bayside Manor along with these other communities. That is the first question.

The second question is, Why don't we ask, invite the communities to join the sound abatement committee? Very frankly, this is a problem of organizing and shifting dates and dealing with the problems, of doing something right now with the problem as we find it, and as we can deal with it as trained professional people in the operation of a very large and complicated business.

We do intend that in our regular meetings—our meetings are held weekly of the executive committee and more frequently a technical committee—to invite designated representatives of the nearby communities to come in and discuss the matter with us. But please, we need time and help, too.

Mr. MOULDER. All right. That answers the question. Mrs. Scannell?

Mrs. SCANNELL. Well, I don't wish to be argumentative because that doesn't get us anywhere, but I would like to call to the committee's attention that when Mr. Belford Brown spoke he did mention a very important thing. Jets are expected to increase within 90 days, and noise, that will bring an increasing noise problem. Well, that is the very fact I mentioned when I got up here to testify, that here the jets are increasing and we get hold of the progress of the airport, which is well and good, but first can't the problem be solved before we continue to bring in the jets? Can't the authorities do something to solve the problem first? Isn't it premature to continue to brag about the progress of the jets while we can't stand living beneath them nights? Now, I would like to ask this committee, What can it do within its powers to appeal to the Federal authorities that have jurisdiction in this matter——

Mr. MOULDER. That is a very good question.

Mrs. SCANNELL (continuing). And relieve us of this jet noise at night so we may sleep? I am concerned with my sleep; the airport is concerned with its progress. I am concerned about that of my child, and also that of other people.

Mr. MOULDER. Yes, you have made this statement. You have empressed us very favorably about it. If I understand this problem, the question is asked us: What can we do? First, I want to say the airport authorities are trying to cooperate. I hope they will continue to concentrate more attention toward that effort. Congress—I, of course, can speak only for myself, and——

Mrs. SCANNELL. Mr. Chairman——

Mr. MOULDER. Let me finish my statement, please—and, of course, appropriate more funds toward helping the city solve these problems.

Mrs. SCANNELL. Well, I am very sorry again. I don't wish to create a riot, but we have not found them that cooperative. We have called the abatement center, as Mr. Fazackerley stated, we have called and called in hopes of getting results. In my area it has grown worse.

Mr. MOULDER. Mrs. Scannell, you made your statement earlier. It was a very fine statement. I am sure you have——

Mrs. SCANNELL. I have further questions. The trainers that are over our heads day and night, can something be done to relieve us of that?

Mr. MOULDER. We understand that is the purpose we are here for, to help if we can.

Mrs. SCANNELL. Then, on the runway extension of 28–L, has that been federally approved already?

Mr. MOULDER. That is a question.

Mr. THOMAS. Mr. Chairman, within the limitations of the funds available to the State of California in this program, it has been approved. As I understand there is not enough money for the whole job.

Mr. MOULDER. Does that answer your question? Thank you very much, Mrs. Scannell.

Mr. JORDAN. Thank you, Mr. Chairman. I would like—my name is Richard Jordan. I am from the San Francisco Examiner. I'd like to direct a question to you, sir—to Mr. Brown—pursuing the question previously raised on the increase expected within the next 90 days, Mr. Brown, in jet traffic at the airport. Could you elaborate? By that I mean, will there be an increase in scheduled flights arriving or departing or will there be a sharp increase of training flights or a combination of the two?

Mr. BROWN. Mr. Chairman, Mr. Jordan, yes, I'll be glad to emplify that statement. Let me first say that the movements in connection with the landing and takeoffs are averaging about 420 a day. If we use that as a hundred percent factor we have, at the present time, as of Monday, April 18, and in the 24 hours, 52 movements of pure jet aircraft which was 12½ percent; propjet movements, 62, for 15 percent. We had 114 movements then of jet aircraft, both pure and propjets, for 27½ percent of factor of our total movement.

Now, last week's takeoffs of pure jets were 36, average today, pure and propjet, is 150. That is, you have pure and propjets, 150, with 88 pure and 62 on the propjets. This indicates, at the present time, 27½ percent of our scheduled movement is, at the present time, jet movement.

We have four of the major domestic carriers and a number of international carriers, and it is anticipated quite conservatively that our jet movement will eventually go to, practically, a hundred percent movement. As to the training takeoffs we are working continually with Congressman Younger in an attempt to get the military to take these training flights off San Francisco International Airport. The San Francisco Airport management, the public utilities commission, and city and county of San Francisco have worked just as hard in order to take and get that movement off our airport. We are a scheduled commercial major airport and if we can get those training movements moved off we are very anxious to have it done.

Mr. JORDAN. Thank you, Mr. Brown. It raises a question which I may address to one of the gentlemen of the Federal Aviation Agency. Why is it that these training flights can't be shunted off to a remote military base? Is there something in the Defense Department that will not permit this? What is the obstacle that won't permit them to move these training flights out?

Mr. THOMAS. Mr. Chairman, I don't know if there are any insoluble obstacles to this or any other question. As a matter of fact, Mr. Quesada, the Department of Defense, Air Transport Association, and others are interested in getting some suitable aids or remote locations to permit such training. There is a requirement, for instance, landing system, there is a requirement for some control. Radar is helpful and other things, and this is not a real easy situation, but one Mr. Quesada is personally interested in and is working on now. So is the Defense Department.

Mr. MOULDER. Any other questions?

Mr. BRUCE. This is a question in search of a—John Bruce, San Francisco Chronicle. This is a question in search of an answer to a previous question a while back. Mr. Noonan asked the question. It was a rhetorical question. We heard no answer to it.

Mr. MOULDER. Yes. You mean Mr. John Noonan?

Mr. BRUCE. Yes.

Mr. MOULDER. What was the question?

Mr. BRUCE. We heard no answer. We wonder if it was a rhetorical question?

Mr. NOONAN. My question was in view of the fact that San Francisco has consulted all of the great brains, here is a man who is not in that group who can construct a barrier which will be accomplished within a year, the principal components can be in in 90 days for $78,000. Now, this is less than what? Well, it is a hundred thousand opposed to 3 million, the cheapest other installation, and its chief components in in 90 days.

I asked the San Francisco Airport operators will they retain this man who can give us the solution?

Mr. BROWN. In answer to Mr. Noonan's question, unfortunately Dr. Garbell is not the consultant of the San Francisco International Airport. We have a consultant, which is in the record, Dr. Robert Hornjeff, who is now a professor of civil engineering——

Mr. MOULDER. Is he here?

Mr. BROWN. Yes, he is, sir; and would be happy to be heard on this subject of the planning, design, and construction of airports. He was formerly with the U.S. Army Corps of Engineers, district office. He was in on the design of 20 airports, actively, in an advisory capacity. Dr. Hornjeff is here and would be happy to answer any questions.

Mr. MOULDER. All right. Would Dr.——

Mr. BROWN. Dr. Hornjeff had an accident and if he may speak from where he is? He had an accident over the weekend.

Mr. MOULDER. Now, what question is being directed to him? (To Mr. Noonan) Do you have a question to direct to Dr. Hornjeff?

Mr. NOONAN. I don't think he would have the authority to answer, to hire and——

Mr. MOULDER. Could you direct your question to what he thinks about the proposal made by Dr. Garbell?

Mr. NOONAN. Do you have the authority to pass on whether or not Dr. Garbell can be retained by the San Francisco Airport?

Dr. HORNJEFF. The answer is "No."

Mr. NOONAN. May I then go back to Mr. Brown?

Mr. BROWN. Mr. Chairman, I think Mr. Noonan is acting like an attorney here in saying we should hire one consultant against another.

Mr. MOULDER. I understand that, so I am going to ask Dr. Hornjeff this question. You have heard the statement made by Dr. Garbell. What is your opinion of his proposal?

Dr. HORNJEFF. Sir, I think it is stated in such general terms that I would have to examine it further, but I will say sincerely that if the proposal is worth while I am all in favor of it, if there is any way.

Mr. MOULDER. Well, then, I will ask another question. Will you consult Dr. Garbell in a sincere endeavor to weigh and consider his proposal, Doctor?

Dr. HORNJEFF. Well, this is up to the airport management.

Mr. FAZACKERLEY. May I take this question? As a member of the Public Utilities Commission and its immediate past president, today is the first indication that I have ever had or our commission has ever had that Dr. Garbell had this revolutionary notion about sound abatement. Anytime from right now, henceforth——

Mr. MOULDER. All right. That answers the question. Any other questions? Our time is being limited. This gentleman here.

VOICE FROM THE AUDIENCE. I'd like to ask Mr. Fazackerley a question who mentioned Brewer Island and 40,000 homes on that island. I would like to know how much of a problem they have, construction will have, in 90 days?

Mr. FAZACKERLEY. Mr. Chairman, I can only say this in response to the question. We are talking about a residential community which has been publicized as representing 40,000 inhabitants. That is approximately the size of the city of South San Francisco. The problem of Brewer Island will be worse than the problem of South San Francisco, and here we are.

Mr. MOULDER. The lady in red.

Mrs. COOPER. Mrs. Joseph Cooper of South San Francisco. San Francisco a short time ago had a problem of moving the military flights to a military base, and they are back again. I would like to ask Mr. Brown, is this because of economics to the airlines that the people have to suffer? If they are gone once why do they have to come back?

Mr. BROWN. I would like to answer that, sir. It has nothing to do with economics. It has nothing to do with the airlines.

And further, we have been on a day-to-day basis, and hourly basis, in which times, they, the military, do allow the airlines to use their bases.

However, I really think the answer to the young lady's question quite probably should be made by the military, if they are represented here.

Mr. MOULDER. Does the military have jurisdictional control over their base?

Mr. YOUNGER. Captain Clough is the one who signed the contract.

Captain CLOUGH. May I ask what the question is?

Mr. MOULDER. Why aren't the jets training out of the military bases as they once were for a time? Is that right, Mrs. Cooper.

Mrs. COOPER. Right.

Captain CLOUGH. Well, this arrangement was made, and I participated in it when it was—with Congressman Younger—when it was done at the request of the airport and airlines, and it was for a 90-day period, if I remember correctly. And one of the requirements was that during that period the airlines would attempt to find some other solution to the problem because the—well, in accepting these flights from our field we had to accept the problem of these additional operations, and the Navy Department decided that was the period that would be, that these fields would be made available, under the circumstances. I think the—I am sure the FAA representatives here are familiar with the action taking place in Washington following this, and it was mentioned here that some action was being taken to set up facilities at some field where these operations could be conducted, but there is a very serious economic problem involved, I think, because of the number of jets which are available, the distances to these fields, the cost of the operations, and all these other factors. I think it imposes quite a burden upon the Military to attempt to relieve this situation on a continuing basis. I think that is all I can say, at this time, sir.

Mr. MOULDER. Well, you all get plenty of money.

Captain CLOUGH. Well, I'd like to state, too, that it was the Navy that helped out on this occasion.

Mrs. WAUGH. Mrs. Waugh, from Millbrae. This is more in the form of a statement rather than a question, and if it would be out of order, would you say so? When Dr. Garbell was speaking it was stated that proposal was a revolutionary idea which he has to cover the end of this runway 1 with a wall or whatever it may be. Our own engineer whom we had hired, Mr. Pietrasanta said the same thing, so it apparently is not a secret among the trade. It is not something that is just a "flash in the pan" or something brand new. It is not revolutionary or secret; it is common knowledge.

Mr. MOULDER. Thank you. Any other questions?

Mr. BING. Bing, from Peninsula Newspapers. To Mr. Brown. Have you or other airport officials ever notified Mr. Grant or the San Mateo Planning Commission that the Brewer Island development lies directly under the approach path of incoming jets?

Mr. BROWN. Mr. Chairman, I am afraid that I can't answer that question. If I may ask some of my associates whether or not we have formerly made—I would like to know, Mr. Messerschmitt, do you know of any correspondence in connection with Brewer Island?

Mr. MESSERSCHMITT. I do not know of any correspondence although I believe the public utility commission did indicate its concern over this matter, and not having the record I don't know whether that was transmitted officially to San Mateo County. It was in all of the newspapers, however.

Mr. BROWN. I am sorry I can't answer you more directly, sir.

Mr. MOULDER. All right, the lady here.

Mrs. BOSAY. Yes, I can answer that question because I have a paper that they were notified if someone would like to read it (holding a newspaper clipping up).

Mr. MOULDER. They were notified?

Mrs. BOSAY. Yes, it was in the paper. I wouldn't say individually, the press so revealed.

Mr. MOULDER. Any question from any person who has not asked a question? Any person who has not already asked a question? The reason I make this is because we are about to close our hearing. We have such a short time in order to make our flight to Los Angeles.

I want to on behalf of—it has been suggested by other members of the committee to invite anyone and everyone who didn't have a chance to be heard by the committee to submit, a period of 15 days within which you can write your statement or submit your statement to this committee by addressing it to the Committee on Interstate and Foreign Commerce, Room 1334, House Office Building, Washington, D.C.

In conclusion I wish to express on behalf of all of the members of the committee our sincere appreciation for the manner in which you have cooperated with us in the holding of these hearings, and also to assure you that our committee will endeavor to do everything within our power to cooperate and help alleviate and solve this problem which I am sure is a problem not only for the airport authorities but all the people who live in the vicinity of the airport. And you may be assured that our presence here is evidence of the fact we are interested as Representatives of the United States Congress in solving this problem. And again I wish to thank all of the officials and all of the citi-

zens who appeared before this committee and cooperated with us in our work, and also say we are deeply impressed by the intelligent, courteous behavior and manner in which everyone has appeared and presented their views before this committee. Thank you very much.

(The following material was submitted for the record:)

TESTIMONY OF REPRESENTATIVES OF THE CITY OF MILLBRAE

The following supplemental information is presented relating to the jet noise problem at the San Francisco International Airport in addition to the testimony presented at the congressional committee hearing of April 20, 1960. It is respectfully requested that this supplemental information become and be a part of the congressional hearing record.

I

LAND USE PLANNING IN THE VICINITY OF THE AIRPORT

A. Reference: Testimony of Mr. Don Fazackerly, president, San Francisco Sound Abatement Committee, page 7, first sentence, at above hearing.

The city of Millbrae has not rezoned the area at the end of runway 1–R. This property was given the zoning designation of R–3 (multiple family residential) upon the incorporation of the city, and has not changed to this date. Prior to the incorporation of Millbrae, on January 15, 1948, the county of San Mateo had zoned the land in this general area, at the end of runway 1–R, as R–1–A (single family residential-agricultural). Unsuccessful applications have been made to the city of Millbrae to rezone certain real property, known as the Yribarren acreage, which is situated adjacent to the Bayside Manor subdivision and within approximately 700 feet of runway 1–R.

As is required by law, the public and adjacent property owners were notified regarding all rezoning proceedings. And, as a direct result of such notification, the following excerpt from the minutes of the September 13, 1954, meeting of the City of Millbrae Planning Commission is presented:

Mr. Harold S. Messersmith, representing the San Francisco International Airport, stated that they were concerned with this rezoning as the area under question fronted the runways of the San Francisco Airport, that if the land is zoned 'unclassified' someone could build something that would constitute a hazard. He said any structure over 40 feet would be considered dangerous and their recommendations would call for having nothing over 40 feet erected anywhere within that area. He said no new airport should be planned without level areas of at least one-half mile behind the boundaries of the airport and the cooperation of the local governments would be necessary."

The proposal to rezone the land from R–3 to U (unclassified) was not successful. No reference was made concerning either the complications resulting from jet air travel at the above or subsequent planning meetings by the San Francisco International Airport representatives.

B. Millbrae Planning Commission meeting of December 9, 1957: The below statement was made in discussion concerning the denial by the planning commission of an application for a variance to utilize the Yribarren acreage for a mobile home unit.

"* * * Commissioner Lepkos said another point to consider is, a trailer court in this location is right in line with the airport flight pattern and people hearing that noise wouldn't stay in the park very long."

C. The above excerpts are for the sole purpose of indicating the thinking and actions of Millbrae officials at various times relating to general city planning in connection with Bayside Manor and the San Francisco International Airport. It is also noted that the proposed park mentioned in the testimony of Mr. Don Fazackerly, president, San Francisco Sound Abatement Committee, is actually a small playground site which has been a matter of community concern for many years. The proposed location for the park is not situated near past or present flight patterns.

It is also worthy of mention that the officials of the city of Millbrae were not made aware of the extension of runway 1–R into the city limits of Millbrae until December 10 of 1959. In addition, this information was learned at a public hearing held in the Millbrae city hall on the above date, and was not received from the officials of the San Francisco International Airport.

II

THE SAN FRANCISCO SOUND ABATEMENT COMMITTEE

A. The San Francisco Sound Abatement Committee is an organization composed of representatives of the several American-flag and foreign airlines operating from the San Francisco Airport, the Airport Transport Association, the Airlines Pilots' Association, the U.S. Coast Guard, the Federal Aviation Agency, and the management of the San Francisco International Airport. The membership of this committee does not include representatives from the cities and communities in the vicinity of the airport. Thus, it is obvious that this committee conducts its activities without benefit of those most vitally affected by the jet noise problem—the adjacent communities.

B. Both the citizens' jet noise committee and the Bayside Manor Improvement Club reported that residents of this area have made repeated complaints to the sound abatement committee. Complainants, after making their initial calls during the first 2 weeks operation of the committee, were then told that the center was aware of their acute problem and that it would no longer be necessary for them to complain every time the jet noise and vibration occurred. It is the belief of the Bayside Manor residents that the reduction of reported complaints from 135 through the week ending March 4, 1960, to but 11 during the week ending April 15, 1960, was largely due to the above statement by the sound abatement center.

III

The City Council of Millbrae, as reported in the April 20, 1960, testimony given at the congressional hearing on airport jet noise, engaged the firm of Bolt, Berenek & Newman, Inc., to provide technical advice on the airport noise problem. As reported, this firm withdrew its services on April 19, 1960, 1 day before the holding of your congressional hearing.

The city of Millbrae has again negotiated with an acoustical expert, engaging Mr. Dariel Fitzroy, acoustical engineer, San Rafael, Calif., for the purpose of making a scientific analysis of the jet noise. It is the city's intention to obtain measured scientific sound readings of all aspects of the noise and vibration emanating from the jet engines in an effort to establish its effect upon the residents of our city. We believe that once all the facts are known about the sound levels and intensities, then a complete solution to the noise problem can be determined.

It is realized that additional time will be required to obtain an analysis of the jet noise.

Therefore, in order that this scientific sound data can be entered in the congressional record, it is respectfully requested that the 15-day limitation for the submission of supplementary information be extended by 30 days.

IV

DEVELOPMENT OF AIRPORT AND ADJACENT COMMUNITIES

Attachment 1. 1936 San Mateo, Calif., quadrangle with "Overlay Showing Airport Expansion to 1960."

The attached 1936 San Mateo, Calif., quadrangle, obtained from the U.S. Geological Survey, with "Overlay Showing Airport Expansion to 1960," is enclosed to assist in visualizing the development of the city of Millbrae and the San Francisco International Airport.

Attachment 2: 1956, U.S. Geological Survey, portions of quadrangles of Montara Mountain, Calif.; San Mateo, Calif.; and, San Francisco, South, are included to depict the more recent regional development of the San Francisco International Airport area.

V

Attachment 3: Enclosed are letters from the St. Dunstan Church and the Millbrae Elementary School District. It is respectfully requested that the letters be included as a further expression of the effect of the jet noise upon the everyday life of our community.

The city of Millbrae wishes to sincerely thank your honorable committee for your interest and for the opportunity of presenting the enclosed information to you. It is our belief that a satisfactory solution to the jet noise is not only possible but will be forthcoming in the near future.

Respectfully submitted.

MARVIN CHURCH,
Mayor, City of Millbrae.

NOTE.—The attachments to this statement may be found in the files of the committee.

(Whereupon, at 4:05 p.m. the hearing adjourned.)

AIRCRAFT NOISE PROBLEMS

THURSDAY, APRIL 21, 1960

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TRANSPORTATION AND AERONAUTICS,
INTERSTATE AND FOREIGN COMMERCE COMMITTEE,
Inglewood, Calif.

The subcommittee met, pursuant to call, at 10 a.m. in the auditorium of Morningside High School, 104th and Yukon Streets, Inglewood, Calif., Hon. Morgan Moulder (chairman of the subcommittee) presiding.

Mr. MOULDER. The committee will be in order.

Before we begin, let me introduce ourselves. I am Morgan Moulder, of Missouri, a member of the Subcommittee on Transportation and Aeronautics. With me are Congressman Derounian, of New York, on my left, also a member of the subcommittee; and Congressman Brock, of Nebraska, on my right, a member of the Subcommittee on Health and Safety.

The three of us are all members of the Committee on Interstate and Foreign Commerce of the House of Representatives.

The Subcommittee on Transportation and Aeronautics is meeting in Los Angeles to consider the aircraft noise problem in this area.

This meeting was arranged at the suggestion of your distinguished Congressman and our good friend, the Honorable Cecil King, one of the outstanding Members of Congress. After all arrangements had been made for the hearing today, Congressman King found that it would be impossible for him to be with us because of proceedings being had on the floor of the House today. He is a member of an important Senate-House conference committee representing the Committee on Ways and Means which has under consideration legislation of great importance to you and to all of us. This conference committee is meeting today in an effort to work out very important legislation, so that it would be impossible for him to get away from Washington at this time.

This we regret very much, because Congressman King has shown a great interest in the aircraft noise problem and has met with the Committee on Interstate and Foreign Commerce during our consideration of this problem, which is of great importance, not only here in Los Angeles, but in many other cities throughout the Nation.

Our committee has jurisdiction over a wide range of subjects of vital interest to the welfare in the Nation. One of the subjects is the civil aviation problem.

I need not take time to go into details regarding the importance of transportation to the welfare of the Nation because it is the livelihood of commerce and our general welfare. We must have a well developed

and adequate transportation system to prosper and expand in this jet age. In fact, without adequate transportation, no nation can defend itself or exist.

The committee has a great responsibility for legislation affecting transportation. We are interested not only in an adequate transportation system but also in safety. We are concerned with all aspects of safety, including air safety and traffic safety. We not only have a responsibility to the 145,000 persons who ride the airlines every day but also to the general public, and to you who are interested in this problem.

For many years the committee has been engaged in a study of aircraft noise problems, which are a considerable problem in the vicinity of some of the Nation's major airports. We have held hearings in some of the cities on this problem.

In writing the Federal Aviation Act of 1958, Congress expressly gave the new Federal Aviation Agency authority to make regulations "for the protection of persons and property on the ground," as well, of course, as people who are traveling on the airplanes, and a broad extension of the rulemaking authority which has been granted to the Civil Aeronautics Board by the Civil Aeronautics Act of 1938, gives them the power and authority to make rules and regulations governing these problems.

During the present Congress, the committee has continued its study of aircraft noise problems in meetings with representatives of the Federal Aviation Agency, representatives of the industry, and the public witnesses.

The aircraft manufacturing industry and the airlines have been working on this for many years and have spent millions to endeavor to alleviate the aircraft noise problems, and many cities have spent vast sums on this problem, too, and we are here to find out more about the problem in this area. We want to know what can be done about it and what is being done about it. We invite your comments and suggestions, and, after having the witnesses who are scheduled to appear today, the committee will then ask all the officials of the Federal Aviation Agency and of the airport and others concerned in having jurisdiction over the problem to appear here on the stage, and they will be interrogated by the public, those who are sitting here in the hearing room, and by the members of the committee.

We are here to find out what the problems are and see what we can do to help.

The first witness scheduled to appear before the committee today is the moderator of the citizens of Inglewood, Dr. Arthur Berke, who has very kindly cooperated in making the arrangements for this hearing and has been very active in working toward the solution of this problem, and he is the first person we will hear.

STATEMENT OF DR. ARTHUR BERKE, MODERATOR, CITIZENS OF INGLEWOOD, CALIF.

Dr. BERKE. Mr. Moulder, Mr. Derounian, Mr. Brock, it is indeed an honor, sirs, that the citizens of Inglewood have been fortunate in having you gentlemen come here today to hear our plight. We have gathered here in a spirit of democracy in action. Citizens who have requested a congressional hearing, our voice has been heard.

Local officials, State officials, have told us the only hope we have of controlling the noise nuisance is to appeal to our federally elected officials. Consequently, we have written with the main request that you hear our pleas.

Now, gentlemen, I address you today as a citizen of Inglewood, and I am speaking for myself; however, after a year and a half's work with this problem, a year and some months, I feel that I could express the sentiments of the people in a very few words.

The people, sirs, have not come here today to ask you for pity, and we don't want sympathy; we ask for empathy. Literally, sir, put yourself in our shoes. Understand our problem as we truly feel the problem.

The basic concept that has been explained by the citizens directly and indirectly, no matter which way they say it, our rights of peaceful tranquillity have been violated. The citizens feel that in the preamble of the Constitution of the United States peaceful tranquillity is mentioned as one of the predominant factors in developing the Constitution of the United States. Every day, every night, our constitutional rights are being violated.

We have come here today to ask you to institute legislation that will protect us under the rights given to us by the Constitution of the United States.

Now, as I have been very fortunate in arranging the proceedings, I can only think of one thought: Where else in the entire world could a meeting like this be held today?

Gentlemen, today the citizens of Inglewood and the surrounding territory take a great deal of pride in functioning with our Government in this problem. Now we take a great deal of pleasure also at this time in publicly thanking those officials who have seen fit to assist the citizens, the mayor of Inglewood, the city administrator, the county of Los Angeles, with Mr. Hahn, the city council as exemplified by Mr. Fred Jones, and those citizens who have given hours of work.

The following proposals are my suggestions, sir. You understand our problem is jet noise. We don't have to tell you we have a problem. You know that. May I suggest the following proposals for immediate relief of this noise nuisance:

For immediate relief (*a*) elimination of all easterly takeoffs. In ceiling zero. [Applause.]

Mr. MOULDER. May the Chair announce that we hope we will have your cooperation in the conduct of these hearings. A demonstration will not occur, and we are here as representing the Congress of the United States and we do ask your indulgence and your cooperation so that we may carry on the hearing and proceedings without demonstrations of any kind. Thank you very much.

Dr. BERKE. Yes, sir. As explanation, reasoning that we have behind this, sir, in ceiling zero conditions, at Los Angeles International Airport airplanes are not allowed to take off. Airplanes are not allowed to land. They go to Ontario to land, and they don't let them take off of the ground.

The citizens feel that if sincere efforts were shown by the airport that they could restrict all easterly takeoffs over this densely populated area. We, as citizens, feel that the takeoff is a disturbing factor for the citizens, that the possibility of their crash on takeoff terrifies the

citizen. There are 8,000 children, approximately, immediately in this flight path, sir. We feel that if the airport officials cannot control easterly takeoffs, it is the duty of the Federal Government to institute legislation to control this, sir.

Two, immediate reduction of payload. Heavy payload increases power requirements which increase noise. Reduction of the payload would assist in the reduction of the noise factor immediately.

Three, the Federal Aviation Agency should be given additional moneys to set up immediately a monitoring system.

Mr. MOULDER. A what?

Dr. BERKE. A monitoring system in the flight path which will aid in the study and evaluation of this problem so that all of the officials of the FAA, the citizens of Inglewood, the airport officials, and the airline officials will not go by hearsay nor will go by individual reactions to noise and sound, but will have official records of offending aircraft, which aircraft are loud, which pilots continuously are loud, what height these airplanes fly at.

Proposals for future aid in the aviation jet field:

(1) To expand and give all necessary aid, moneys, to the FAA in our own program of noise suppression at the present.

(2) A new commission is suggested to be set up by the President of the United States similar to the Doolittle Commission of 1952 under President Truman which will be specifically instructed to study the problem of aircraft in relationship to persons on the ground.

(3) A congressional "watchdog" team should be set up exclusive of the FAA to insure that aircraft manufacturers do not increase speed and payload at the expense of increased noise.

(4) And finally, sir, in order to implement the development of noise suppressors it is further suggested that the Congress appropriate additional sums of money to be offered to private industry for a crash program in the development of noise suppression.

Thank you very much.

Mr. MOULDER. Thank you, Dr. Berke.

A moment ago when I was making an announcement not to demonstrate in the hearing room, I can understand the intense, sincere desire and spirit of the people in their interest in this problem. I didn't intend it in any way of criticism for anyone who was cheering your remarks.

Dr. BERKE. That's all right, sir.

Mr. MOULDER. Now, are you to present the other witnesses?

Dr. BERKE. I would be very pleased to present the witnesses, sir. I have tried diligently to give a complete picture of this problem as it affects this entire area.

Mr. MOULDER. Now, Congressman Brock, do you have any questions to ask Dr. Berke?

Mr. BROCK. Just one question, Mr. Chairman.

Dr. Berke, you made mention of the easterly takeoffs. Could you tell us for the record, Dr. Berke, what percentage of your takeoffs are in an easterly direction?

Dr. BERKE. The exact percentage, sir, I could not tell you. However, I do have those facts available, and if the committee would like those facts, the record is kept, and this could be made available, sir.

I would say it is a relatively small percentage of takeoffs, but we have the exact figures that the citizens have been attempting to keep.

Mr. BROCK. I think it would be helpful for the record if you would furnish that, with the permission of the chairman.

Dr. BERKE. Yes.

Mr. BROCK. That is all I have, Mr. Chairman.

Mr. MOULDER. Congressman Derounian?

Mr. DEROUNIAN. I have no questions.

Mr. MOULDER. Thank you very much. Now, do you wish to present the people, or shall we call them?

Dr. BERKE. Well, sir, I would say that if you would like to call the people, the only suggestion that I may have is an explanation of who we are having for your complete understanding of how this problem is covered.

Mr. MOULDER. Very good.

Dr. BERKE. The city of Inglewood is represented here today, and this is the basic—may I just show you in diagram? The Los Angeles International Airport is here [indicating]. The city of Inglewood is here [indicating]. The El Segundo section is here [indicating]. The Playa del Rey section is here [indicating]. The Los Angeles County section is back in here [indicating].

Gentlemen, you sit right here [indicating], so consequently we will hear from this section, the city of Inglewood, and then we will hear from the airport itself to explain their relationship here; then we will hear from the citizens in the fringe areas so that they completely explain themselves, and if you would like to call the witnesses as you see fit, please do.

[Jet noise.]

Mr. MOULDER. Well, I see we are getting a demonstration of it here.

The next witness or person to appear before the committee is the Honorable George England, mayor of the city of Inglewood.

Mr. Mayor, we are very happy to have you before the committee, and appreciate your coming and giving us the benefit of the information that you have on this subject.

Mayor ENGLAND. Thank you, gentlemen. We are very happy to have you here in Inglewood, and from what I have to say you will understand.

Mr. MOULDER. Thank you.

STATEMENT OF HON. GEORGE ENGLAND, MAYOR, CITY OF INGLEWOOD, CALIF.

Mayor ENGLAND. Honorable Members of the Congress, I deeply appreciate your taking time from your busy schedules as Members of the House of Representatives of the United States to hear and give consideration to the problems of this community, concerned with the operation of jet aircraft.

The city council of the city of Inglewood was concerned about jet aircraft noise prior to the start of jet operations to and from the Los Angeles International Airport. However, we were assured by people in the aircraft industry that the noise factor would not be greater than that created by the piston engine type of aircraft.

With the start of the regular jet aircraft operations in January 1959, the city council recognized that there was a real noise problem. Numerous complaints were received and as the number of air transport flights increased, the number of complaints increased at a tremendous rate.

The city council took immediate action and directed the administrative officer to point out the problem to those concerned in the aircraft industry, including the Federal Aviation Agency, the airline operators, the airframe manufacturers, and the Los Angeles Department of Airports. We also communicated with our Representatives in the U.S. Congress and in the State government, and, ad libbing, gentlemen, I want to say to you that I addressed a letter to every person I knew in Washington and to our Governor of the State of California, and I have a file about 12 inches thick of correspondence.

Our city attorney was directed to call on the top officials of the Federal Aviation Agency in Washington and to point out our problem to them. In addition, we have lent full support to the effort of the citizens' health and welfare council, formed to combat that serious noise problem.

At an informal meeting that I called on October 29, 1959, representatives of the various groups interested in this problem met in my office with the thought to provide for cooperative action by all in seeking an adequate solution to the problem. It was at this meeting that I suggested to the group that we should request a congressional hearing here in Inglewood. This was done because we had been informed that the Federal Aviation Agency was the proper authority to correct the problem and that the city of Inglewood, as a municipality, the county of Los Angeles, and the State of California did not have authority to attempt any regulation of aircraft while in the air.

It was my opinion that the Congress of the United States should be fully cognizant of the serious nature of the problem in the Inglewood area, with its adverse effect on the peace and quiet and mental and physical health of persons residing in the approach pattern to the Los Angeles International Airport. This, so the Members of Congress would be in a position to properly evaluate legislation broadening or extending the authority of the Federal Aviation Agency or other agencies appropriate to the solution of this problem, and, further, so that Congress would be aware of the problem in considering budget requests of such agencies.

Our city council urged the adoption by the Federal Aviation Agency of the special civil air regulation No. 436. We also requested in supporting this regulation that the Federal Aviation Agency be urged to continue studies of the critical jet noise problem in this area, with a view to the broadening, strengthening, and amplifying the proposed rules.

The rule, No. 438, that was adopted by the Federal Aviation Agency, has been modified substantially from that originally proposed. The restriction requiring jet aircraft to maintain an altitude at or above a 3° glide path was modified so that it applied only until the aircraft reached the middle marker.

Restriction on easterly takeoff between 10 p.m. and 7 a.m., except under certain surface wind conditions, has been omitted from the rules.

Mr. MOULDER. Pardon me, Mr. Mayor. I didn't understand those hours you were talking about.

Mayor ENGLAND. In the original 436, Congressman, I believe that it stated there that—I do not have that before me—and the original 436 mentions specifically that the easterly takeoff would be at certain hours. I believe I am correct in that statement. I do not have that regulation, No. 436, with me.

Mr. MOULDER. There are representatives here of the airport and the Administration that can give us that information.

Mayor ENGLAND. I believe they would, yes, but rule 438 was the one I understand was adopted.

These changes themselves watered down the original provisions which were felt to be an absolute minimum to even start to bring the noise problem down to an acceptable level.

It is our opinion that an all-out effort should be made both from the standpoint of regulating aircraft flight and research and development of jet engines that will extend relief to people living under or near the approach or takeoff pattern of airports.

If this is not done, public opinion in itself will demand complete restrictive action against the operation of such aircraft. We fully realize the tremendous importance of this type of aircraft in commerce and transport in the United States and also of the substantial value that they would have from the standpoint of defense in any national emergency.

We do not believe, however, that it is feasible, nor fair, to continue to ask our citizens to put up with a problem which is detrimentally affecting the livability of areas of our community and adversely affecting peace, quiet, and health of our citizenry.

Thank you, gentlemen, for giving me the opportunity of speaking to your honorable committee.

Mr. MOULDER. Mayor England, we certainly thank you.

Mayor ENGLAND. Well, Congressman, as I said before, we are grateful for your attendance here today, but I would just like to say, as my own personal note to you, that this is a tremendous, serious problem with us.

Mr. MOULDER. I am sure it is.

Mayor ENGLAND. For your information, I have lived here in Inglewood for almost 50 years. I have seen the community grow, and people have a right and have had a right to build their homes where they wished, where they desired. I have reason to believe that we cannot expect immediate results in the next hour or the next week or the next month, but, gentlemen, we certainly are going to look forward to relief in the very near future.

Mr. MOULDER. We appreciate——

Mayor ENGLAND. My opinion, there isn't anything that is impossible when we can go up to the moon and come back and sometime have a satellite stationed in the air, and so forth and so on. I feel there is no reason why we cannot improve these jet engines, and the manufacturers are the people who can do it.

Thank you again.

Mr. MOULDER. That is the reason we are here, to hear the people as representatives in Congress, not only of our respective districts, but representing and doing our duty for the best interests of the entire

Nation, and your problem here is our problem. We want to help solve it if we can.

Mayor ENGLAND. When Cecil King was here on his last trip, our administrative officer, Mr. Hahn, and myself went to his home personally. Of course, I have known Cecil for many, many years, and I told him when he appeared before this group here right at the pattern, and I want you to say to him that we greatly appreciate all that he has done for us, and after all, this is his district and he should be just as interested as I am. And believe me——

Mr. MOULDER. It is because of his insistence that we are here.

Mr. Brock, do you have any questions?

Mr. BROCK. No questions, Mr. Chairman.

Mr. MOULDER. Any questions, Mr. Derounian?

Mr. DEROUNIAN. Mayor England, what is the population of Inglewood today?

Mayor ENGLAND. Well, gentlemen, as of yesterday it was 66,736, but I became a father of another 13,000 yesterday, so we have about 75,000 population. Now, and incidentally, gentlemen, this new district that was annexed to Inglewood is right under this flight pattern, and I don't want any more complaints.

Mr. DEROUNIAN. Prior to the advent of the jets were you people still bothered by the noise under piston propellers?

Mayor ENGLAND. In my opinion, no. I had never heard nor can I recall of ever having any complaints regarding it. I live close by myself, and the prop aircraft never troubled me any, but I can sure give you some experiences that I have had, under oath, if you want them, because here, just a week ago, I—well, I couldn't hear myself think. I couldn't even hear conversation, and that was right at the 10,000 block on Hawthorne Boulevard at 1:15 in the afternoon.

Friday, the 8th, I believe it was.

Mr. DEROUNIAN. We are well acquainted with the jet noise. I come from the area of Idlewild and La Guardia, and we have got your problem multiplied a hundred times; not that that helps you, but I am very sympathetic to this problem.

Now, we all understand, of course, that the airport is not going to be moved, I think everyone in the audience understands that—within the foreseeable future. In other words, you don't want the airport put out of business completely?

Mayor ENGLAND. You mean me?

Mr. DEROUNIAN. Yes.

Mayor ENGLAND. No, sir. We couldn't get along without it.

Mr. DEROUNIAN. On the noise suppressors, you are not going to get any relief that I can see within the next year because of this technical fact, and there is no way you can explain it away, a noise suppressor reduces the power of the plane so that if the plane takes off with a noise suppressor it is going to hover over the community for a longer time rather than gaining altitude quicker. Query, then: what do we do?

Well, first of all, we should make sure, and this committee will make sure, that every conceivable rule and regulation adopted for your safety and comfort is being adhered to, and we have found in some cases that sometimes the airport management, other times the city, have been a little lax in rapping some of these airplane companies on

the knuckles when they have been violating the rule or regulation for minimum descent altitude, et cetera, and the patterns of flying.

Now, those things we are going to make sure of are kept current, and in conformance with the spirit with which they were enacted.

No. 2, if there is any regulatory amendment that can be made to help your problem, we are going to do that, and you can rest assured that FAA and the airport, because of these various hearings we have been having all over the country, are pretty much aware that we want some relief for the people, and that your rights are not going to give way exclusively to the almighty buck, which seems to be so important these days in our life.

I am happy to be in California. I think you have a great State.

Mayor ENGLAND. Best in the 50.

Mr. DEROUNIAN. I have a Texas wife, and I often tell her that California has got a lot more to crow about than Texas, but I wouldn't say that to her personally. She is back in New York.

Thanks for being with us, Mr. Mayor.

Mayor ENGLAND. Thank you, gentlemen.

Mr. MOULDER. The next witness or person to appear before the committee is Walter Hahn, administrative officer of the city of Inglewood.

STATEMENT OF WALTER HAHN, ADMINISTRATIVE OFFICER, CITY OF INGLEWOOD, CALIF.

Mr. HAHN. Thank you, gentlemen, for the opportunity of appearing before you.

Honorable Members of the Congress, the start of the regular jet air transport operation to and from the Los Angeles International Airport in January 1959, initiated a long series of complaints from the residents of Lennox, Los Angeles, and our own city, concerning the noise nuisance created by this type of aircraft.

We, in Inglewood, fully recognize the importance of the Los Angeles Airport and the appurtenant industries and the airline operations to the economic stability of our area. However, we also know that our citizens and the citizens of other areas in the operating zones of aircraft going to and from the airport have suffered materially from jet aircraft operation.

A limited survey, which our office made, has indicated that apartment houses are having some difficulty in renting because of the jet noise nuisance. Lending institutions have stated that they are concerned about property values and that they would have to limit real estate loans in the area affected. Businessmen have stated that it is difficult for them to conduct business, particularly telephone conversations, when jet aircraft pass overhead.

In addition, the educational value of numerous educational institutions has been reduced.

The seriousness of this noise problem was brought to the attention of all concerned in the aircraft industry immediately after the start of jet aircraft operations. All have admitted that the noise factor in jet transport operation is far above that expected prior to the commencement of service. We have been told it has arisen at many airports throughout the country.

We have two major problems in our own community. The first involves approaches from the east to the airport. We are told approximately 95 percent of the planes must approach from this direction because of wind conditions, air traffic, and safety requirements.

The second problem is 180 degrees reversed actually and involves the takeoffs to the east over densely populated areas of our city. The easterly takeoffs are few in number but do cause the maximum of noise nuisance and concern for the safety of people on the ground.

An airport operations committee was formed in 1959 and held its first meeting on July 9. This committee has subsequently changed its name to the Los Angeles Sound Abatement Coordinating Committee. The committee was formed with the purpose of attempting to do something to alleviate this noise nuisance situation. A great deal of work was done by this committee and the airlines agreed to certain voluntary restrictions in their operations. These included coming in on the high side of the glidepath, the raising of the glidepath, the restriction of easterly takeoffs between 10 p.m. and 7 a.m., and the setting up of new approaches to allow pilots to come in high at the outer marker and to give them a greater time period for setting flaps and other necessary procedures for landing; this to enable the establishment of a proper power set for the rate of descent before reaching lower altitudes over our city and the adjoining areas.

I might also state that the regional office of the Federal Aviation Agency has been most cooperative in all of our dealings with them, and I believe that they fully recognize the seriousness of our problem. However, rule No. 438, adopted by the Federal Aviation Agency in place of rule No. 436, actually reduced some of the requirements that have been complied with voluntarily in the past.

We believe that a good deal has been accomplished to date and that work in this area is perhaps serving as a guide for other areas. However, we do not feel that what has been done has brought the noise level down to that which can be considered acceptable.

We recognize that noise suppression must be related to the safety of jet aircraft operations; however, statements made by pilots and people in authority have often been contradictory. We have been told that new jet engines now in manufacture will reduce the noise level; however, others have told us that this is false and the engines will be just as noisy particularly in the approach of aircraft to the airport. We have also been told that aircraft and engine manufacturers are spending millions of dollars working on designs of better noise suppression devices; however, others have told us that they do not foresee the development of any device, in the foreseeable future, that will materially reduce the noise level.

We have also heard the comment that people will get used to the jet noise after a period of time. Certainly, our citizenry have not gotten used to it over a rather long period of time, nor do I believe that we may consider this concept as sound.

Our citizens are deserving of relief and cannot be expected to continue over a long period to put up with the noise from an ever-increasing number of jet aircraft.

We believe that there must be an all-out program of research and development of engines and/or noise suppressors that will reduce the

noise of jet aircraft to a reasonable level. We also believe that further study must be given to the design of aircraft so that descent may perhaps be made at a steeper angle in order that there be more altitude under the plane over the populated areas. We, in addition, feel that some immediate consideration should be given to determine whether the approach and takeoff procedures based primarily on a safety standpoint may be further refined to help alleviate the noise situation.

I think we all recognize that this cannot be accomplished overnight and that all noise cannot be eliminated. By the same token, we cannot ask the people of our communities to continue to live with this serious problem affecting their everyday life.

Thank you, gentlemen, for the opportunity of appearing before you.

Mr. MOULDER. Thank you, sir.

Mr. Brock, any questions?

Mr. BROCK. Mr. Chairman, one question of the witness: What is the distance from this school to the International Airport in Los Angeles?

Mr. HAHN. I would say about 3½ miles, sir.

Mr. BROCK. Three and a half miles. I see. Thank you. That is all, Mr. Chairman.

Mr. MOULDER. Mr. Derounian?

Mr. DEROUNIAN. Mr. Hahn, have you discussed with FAA here the reassignments of any traffic patterns——

Mr. HAHN. We have worked closely with them. I think we have worked with them diligently, sir, in attempting to find solutions to this problem. The proposals originally presented in proposed rule 436 were based, I believe, on a rather comprehensive study by regional officials of the Federal Aviation Agency.

Mr. DEROUNIAN. Has there been any discussion of runways to improve the present ones?

Mr. HAHN. We have the problem, of course, with the wind directions that we have in this area, that all of the runways at the airport provide for approaches, at least over all—over densely populated area.

Mr. DEROUNIAN. Do you have room at the airport for the extension of these runways so that they could take off further back, and as they go over the community they would be higher?

Mr. HAHN. Yes, and the Los Angeles Department of Airports has again, I feel, been cooperative in this problem. They have proposed at the start of this problem to increase the length of the plane runway, and that construction work is now underway. However, with the flat glide angle necessary for the approach of this heavy-type jet aircraft, despite bringing the threshold further away from our populated areas, the difference in elevation, of course, is rather nominal.

Mr. MOULDER. Do you observe the noise mainly from flight, or is it at the time of takeoff, just before taking off, when they are warming the engines up?

Mr. HAHN. Our city is affected primarily, sir, by the noise from aircraft in flight. We do get some reactions from aircraft on the ground, too. The most serious situation we have, without question, is the easterly takeoff of aircraft. This brings them right over the densely populated areas, which, incidentally, start about half or three-quarters of a mile from the end of the runway at the airport, and continue——

Mr. MOULDER. We have just completed hearings on this same subject in San Francisco, and there was some effort being made in the construction of a noise protection wall or a sound absorbing wall contraption of some sort to help on the question of the takeoff, just before the takeoff.

Mr. HAHN. That, I believe, sir, has been done at this—is being done or has been done at this airport also.

Mr. MOULDER. Do you have any information as to the air training, air carrier training activities, whether or not jet training activities are confined just to the airport?

Mr. HAHN. No, that I do not have information on.

Mr. MOULDER. You don't know, then, what portion of these jet flights are training flights?

Mr. HAHN. No, sir, I do not. It was my understanding that there were few training flights originating out of this airport.

Mr. MOULDER. Mr. Fox will be here, and also Mr. Belding. We will hear them later.

Thank you very much for your appearance before the committee, Mr. Hahn.

The next witness or person to appear before the committee is Fred Jones, a member of the City Council of Inglewood.

STATEMENT OF FRED JONES, MEMBER OF THE CITY COUNCIL OF INGLEWOOD, CALIF.

Mr. JONES. Honorable gentlemen and Chairman Moulder, Congressman Derounian, and Congressman Brock, greetings.

Mr. MOULDER. Mr. Jones, we are glad to have you before the committee.

Mr. JONES. Thank you. I say that any duplication in my remarks is regretted, but nevertheless I imagine you gentlemen are accustomed to having successive speakers say again what has been said in a little different way by a previous speaker.

Mr. DEROUNIAN. We hear each other every day, you know.

Mr. JONES. The newness of the jet noise problems is undeniable. It seem to have caught many by surprise, the Federal Aviation Agency, jet engine manufacturers and the airline and airport operators have claimed to be as surprised and chagrined by the excessive noise as by the people who are tormented by it.

It is well to recognize that at this point we are talking about jet noise, and jet noise alone. The people who are now living under the approach pattern of the Los Angeles International Airport were not abused by the piston engine plane. Consequently, it is wrong and evil and inhuman to condemn the people for establishing their homes under the flight pattern. They were here before the jets. This is true also of the schools.

The nature of the jet noise problem is undramatic. It lacks the sympathy of arousing impact of catastrophes such as floods and tornadoes. Nevertheless, when whole neighborhoods are inundated by repeated attacks of jet noise, people are confronted with deteriorating home values and unhappy and intolerable living conditions, and the worst is yet to come before too long. The expected traffic is 150 jet planes a day arriving at the international airport, plus substantial freight traffic.

One reason for difficulty in abating the jet noise nuisance is because somehow or other landowners have been deprived of their above-ground air rights. Property owners still have, for the most part, all water and mineral rights beneath their land, and surface rights prohibiting trespassing, but apparently they own little or nothing of the air space above their land; consequently, the people must look to others to provide quick and effective help in the abatement of jet noise.

Another reason for a lack of effective jet noise abatement is because it is not subject to local regulation. Many of us in this area were disconcerted to learn that neither city, county, nor State had any power nor authority to attempt to mitigate this problem. The only agency having direct responsibility for abating this nuisance is the Federal Aviation Agency, whose head office is in Washington, D.C., and again, because of the newsness of the problem it was not until a few months ago that the FAA even acknowledged their responsibility in the noise abatement field.

In matters of local concern a local government can take immediate steps to abate a nuisance. If a local government does not properly respond to the complaints of the citizens, the citizens have recourse at the next election. What recourse is there when the responsibility for it is 3,000 miles away from the problem and respond improperly?

Let us now review a little history. We were all taught that there are three branches of the Government; the executive, the legislative, and the judicial. This was formerly true. In actuality, there are five, the fourth being the regulatory agency, and the fifth branch being the legislative advocates, or in plain words, branch four, the bureaucrats, and branch five, lobbyists. Later on I will refer again to the fourth and fifth branches.

Government in a democracy has two reasons for existing. One is to protect rights, and the other is to provide services. The second reason is the less important because such services as the Government may provide could conceivably be provided by other agencies. Consequently, the purpose of government is to protect the lives of its citizens and to protect any group of citizens when the rights of that group are imperiled.

Now, what are the rights of the people who are being tormented by jetplane noise? Gentlemen, may I submit that to determine these rights is why you are here holding this hearing, to determine the rights of these people in their present predicament. Let us enumerate some of these rights.

First of all, they have a right to be heard by the responsible governmental agency. Second, as free people, they have the right not to be pushed around by that agency or any agency of their own Government. Third, they have the right to expect the proper agency of government to prevent them from being pushed around by any economic special interest. Fourth, they have a right to expect that whatever can properly be done be done without delay. Fifth, they have a right to expect that subsequent action be taken to provide step-by-step relief. Sixth, they have a right to expect Congress to see that the regulatory agency does what it ought to do and was created to do. Seventh, they have the constitutional right of domestic tranquility.

Let us review what has been done to date. Three noteworthy actions have been taken. One, the decision of the Los Angeles International Airport to spend approximately $1 million in runway extension to provide for longer takeoff runs and to enable arriving planes to set down further to the west. The second noteworthy action has been raising of the approach glide path from 2¾° to 3°. The third action that has been taken is the establishment of a sound abatement committee at the Los Angeles International Airport which has held regular meetings to which interested officials have been invited. We appreciate and are grateful to those responsible for these actions.

A local office of the FAA recently promulgated a rule for aircraft operations at the Los Angeles International Airport. This rule, as originally proposed, promised some relief from jet aircraft noise. The rule, as adopted, has not only not offered any promise of relief, but in the minds of local citizens has resulted in a substantial increase in jetplane noise.

Let us examine the original proposed aircraft rule, which contains five points. Point 1, en route aircraft must avoid the Los Angeles International Airport traffic area. Point 2, maintain two-way radio communication. Point 3, all planes must maintain an altitude of at least 1,500 feet as long as possible, arriving, and reaching an altitude of 1,500 feet as quickly as possible, departing. Point 4, jet aircraft, when approaching for a landing, must approach at not less than a 3° glide path at point of touch-down. Point 5, between the hours of 2200 and 0700, Pacific Standard Time, all takeoffs to the west unless such takeoff involves a downwind component of 10 or more knots.

The new rule contains the same first three points of the original proposal. Point 4 has been properly modified to permit a flareout upon landing. Point 5 has been omitted entirely.

Inasmuch as point 5 pertained to jet aircraft exclusively, and inasmuch as only point 5 promised more relief from the jet noise problem, it is obvious that the Federal Aviation Agency emasculated the proposed jet noise regulations to such an extent that they no longer offer any promise of jet noise abatement. And here we come to the impact of the fourth and fifth branches of government on our local problem.

Local action was initiated to furnish relief, namely, it was agreed that there would be no easterly takeoffs between 2200 hours and 0700 hours, Pacific standard time, unless such takeoff would involve a downwind component of 10 or more knots. The local office of the Federal Aviation Agency, in preparing proposed regulations, merely incorporated this. The Washington office, however, decided to overrule the local office and issue a regulation which had the effect of nullifying a local effort to reduce jet noise. Why was the FAA, instead of protecting the interests of the people, yielding to pressure to cancel the rule already in effect? In other words, the bureaucrats and lobbyists united to see that nothing substantial was done.

The Federal Aviation Agency not only omitted a proposed jet noise abatement regulation, but also omitted any reference in the regulation to jetplanes which produced the awesome noise.

We strongly feel that there are certain things that the FAA should have already done, and by all means should still do. We also feel very strongly that there are other things which should be done on a step-by-step basis until this problem is substantially abated.

Proposal 1, that all easterly takeoffs between the hours of 2200 and 0700, Pacific standard time, be prohibited immediately.

Proposal 2, that a reasonable period of time be allowed to prepare for the complete prohibition of all easterly takeoffs.

Proposal 3, that a monitoring system be established without delay whereby easterly jetplane arrivals be recorded in permanent form. This will enable the FAA to compile factual data concerning what planes make the least noise or the most noise, what airline operator makes the least noise or the most noise, and what pilots land the planes with the least noise and the most noise. Also, it will provide a measurement of the degree of excessive noise over and above the degree of tolerable noise. When such information is available, proper steps can be taken by all concerned to improve the situation wherever it can be improved, especially by the development of better landing techniques.

Proposal 4, that studies be made as quickly as possible regarding the establishment of an official alternative jetplane landing and takeoff field in the Los Angeles area.

Proposal 5, that if the Ontario International Airport is selected as such alternative airport, Federal assistance must be made to it for the lengthening of its runways.

Proposal 6, that necessary legislation be enacted to make the FAA more responsible to those who created it and less responsible to those whom it regulates, thus insuring a great responsiveness on its part to the justifiable complaints of the people.

Proposal 7, that all reasonable assistance and encouragement be given manufacturers in their efforts to produce less noisy engines and better noise suppressors.

In making these proposals we want it clearly understood that we are not proposing that the airport be moved out or that the airlines go broke in order to abate the jet noise. We do insist, however, that it is possible for the airport to continue to operate, for the airlines to continue to make money, and for the jet noise to be abated, and abated without jeopardizing safety in any way. We sincerely and respectfully request that the Congress of the United States insist that immediate remedial steps be taken to abate the jet noise problem so that the people of this and other neighborhoods can once again live in peace and tranquillity.

Mr. MOULDER. Mr. Brock?

Mr. BROCK. Mr. Jones, you pointed out various areas in which agencies have been helpful, in fact, in changes of various regulations in about six instances. You stated in your testimony that they were helpful in making some changes. However, then, you criticize the FAA. As my chairman stated, and my colleague from New York has stated, at these hearings we have the top people of the FAA, and we find that many times at these hearings the citizens point out certain areas in which they feel that they need some relief, and the FAA, I find, has been most helpful in cooperating not only with the committees of Congress, but with the airport authorities and with the citizens affected.

Now, Mr. Jones, isn't it true that the greatest problem lies in takeoff rather than in the gliding in for a landing?

Mr. JONES. Not in this neighborhood.

Mr. BROCK. Well, we have found in numerous hearings that the criticism isn't great in those areas where the citizens lie within the landing pattern rather than within the takeoff pattern.

Now you further stated that you wanted to completely do away with the easterly takeoffs.

Mr. JONES. On a gradual basis, sir.

Mr. BROCK. Isn't it also true that the easterly takeoffs are very minor in number compared to the westerly takeoffs?

Mr. JONES. It is not the incidence of the takeoffs, but the magnitude of any individual takeoff, Congressman, sir, that is excruciatingly bothersome. Even if there were just one takeoff, shall we say, to the east, a person on the verge of having an operation, say, would be rolled out of their bed at that particular moment, or maybe not too sound emotionally, just trying to get to sleep, and this terrible thing that is coming, you don't know what's going to happen. You have a feeling that the plane is coming right at your house. It is a terrible thing, and the house begins to shake and everything; just one of those things can upset an individual and a group of individuals emotionally.

Our problem here in this immediate area, though, is the overwhelming noise caused by the continuous arrival of jet aircraft at low altitudes making excessive noise. Now at the other side of the takeoffs occurring, the people out in the Playa del Rey area, they have a problem with the easterly takeoffs out there, and I presume some of them are here to speak to that situation.

Mr. BROCK. Wouldn't you say that that problem was greater?

Mr. JONES. Who can say which problem is greater?

Mr. BROCK. I mean in decibels of sound.

Mr. JONES. Sir, that is part of the problem. Nobody has come up with measurements of it. That is why we feel there should be measuring devices available on this matter so that the people who should, for instance, I can't sleep if there is a clock ticking or a watch ticking in my bedroom, but if there is a freight train going by my hotel room, that doesn't bother me at all. So it is hard to define these things. However, we do need a measuring device that can be relied on scientifically so that can then establish what is a tolerable degree of noise for the large number of people, and over that amount of noise is intolerable noise, and that is what we are after. That measurement of noise over and above the tolerable that can be reduced, sir.

Mr. BROCK. That is all I have.

Mr. JONES. My only criticism of the FAA is the fact that they overruled the local agency that had sincerely tried to do something and had presented something that would be helpful to the situation, sir.

Mr. BROCK. I feel that the FAA in overruling probably had some very solid reasons for overruling.

Mr. JONES. Would you like to hear them, sir? They are here. I hesitated to recite them. That is part of the problem. We actually not only objected to their overruling, but we objected sincerely and vehemently to the reasons they gave for overruling.

Mr. MOULDER. Mr. Derounian, do you have some questions?

Mr. DEROUNIAN. I think he was going to finish.

Mr. JONES (reading):

It was concluded, therefore, that the extent of relief—

this is the reason they give for overruling—

It was concluded, therefore, that the extent of relief from the—

that is the relief to the people, these people who were suffering—

it was concluded, therefore, that the extent of relief from the noise problem which this provision might have achieved would not have compensated the degree of restriction it would have imposed on domestic and foreign air commerce.

Now, what, in plain words, does that mean? Well, it means that the FAA decided actually to slap the face of the people rather than pinch the pocketbooks of the big airlines. That is actually what this means.

Mr. MOULDER. Mr. Derounian?

Mr. DEROUNIAN. Mr. Jones, your charge in your testimony that the lobbyists in effect had controlled the FAA in Washington is rather serious to me, and what I want to know——

Mr. JONES. I didn't say "controlled."

Mr. DEROUNIAN. You said they got together against the people of Inglewood.

Mr. JONES. Yes.

Mr. DEROUNIAN. Is that what you think? Is that your surmise or do you have proof?

Mr. JONES. There, again, sir, let us go back.

Mr. DEROUNIAN. I am just asking you. Don't give me your feeling. Just tell me whether that is your personal opinion or whether you have proof to back that up, because this is a serious charge. If the lobbyists have that much influence on General Quesada, and I'll say this much for him, I don't agree with him all the time, but the airlines don't like him, the pilots don't like him, and now you don't like him; so I think he is probably doing an honest job.

Therefore, I ask you again, is this just surmise on your part or do you have proof? It is a serious thing to come from your mouth or from anybody's mouth.

Mr. JONES. This is my considered opinion, based upon correspondence, issues like this, from the Federal Aviation Agency, and various statements that have been brought to our attention, especially from a personal visit by one of the group to Washington, D.C., that obviously it seems to us that the aircraft companies had more influence upon—through their representatives, whether you call them legislative advocates or lobbyists, or whatever you call them, that the aircraft companies and the aircraft industry itself has more influence upon the FAA than we did.

Mr. DEROUNIAN. Of course, Mr. Jones, you may not be familiar with the case of Allegheny Airlines against the village of Cedarhurst. That comes from my home county where the village had tried to restrict planes from coming in below approximately 1,000 feet, and they fined one of the companies and they took the case to the Federal court. The Federal court held that ordinance unconstitutional. Perhaps that is one of the reasons why the FAA goes very carefully in restricting these flights. It is not a simple problem, although there is sufficient authority in the FAA to control the noise.

They have also got to think of contractual rights which they may not want to think of, but it is a fact, and under our system of government, where you can bring a lawsuit at any time at any place, it is a factor involved, although sympathetically, I feel for the people here;

but let's not just say in black and white that the lobbyists had control of Quesada and he is involved in a plot against the people of Inglewood or New York City or San Francisco. I just don't think that is fair and does not jibe with the facts, although it may be your opinion. That is what I wanted to get cleared up.

Mr. JONES. If the FAA had promulgated the rule that the city of Cedarhurst promulgated, would it not then have been legal?

Mr. MOULDER. May I interrupt? I assume that Congressman Derounian is referring to the unconstitutionality being based on the fact that the city didn't have the authority to make such regulation. May I say to you, Mr. Jones, I want to compliment you for your very fine statement. It is very interesting, very informative, and I am in complete accord with your prepared statement, which you made in the beginning, and also in accord with some of the other remarks you made about regulatory agencies.

Mr. JONES. Thank you very kindly, sir.

Mr. MOULDER. The next witness or person to appear before the committee in Mr. Kenneth Hahn, supervisor of the second district of Los Angeles County.

STATEMENT OF KENNETH HAHN, SUPERVISOR, SECOND DISTRICT, COUNTY OF LOS ANGELES

Mr. HAHN. Mr. Chairman, members of the committee, I have three opinions I thought each of you would like to have on this subject that you may read and take back.

It seems strange, Mr. Moulder, that the very case that distinguished Congressman from New York mentioned was cited in this written opinion by our county counsel, Mr. Harold W. Kennedy. On November 17, 1959, I asked him four questions, and you will see that the National Law Review reprinted this opinion and my questions to him for nationwide interest, and I have handed to each member of the committee that request for a legal opinion, as well as the answer.

Now, briefly, members of this congressional committee, I would like to identify myself as the county supervisor from the Second District. We have five supervisors who govern this county. We have 6 million people in this county, and I represent over a million people. I have four Members of Congress from my supervisorial district; either all or part are very pleased with the distinguished Representatives in Congress from my supervisorial district. I have the Honorable Cecil King, who is a very good friend of mine, and Hon. James Roosevelt, Clyde Doyle, and Gordon McDonough. Those are the four Congressmen, all of whom have distinguished records in Washington over a period of years, and they are principally the Members of Congress from my supervisorial district.

As I say, I have over a million people whom I represent. Now, the International Airport is in my district, as well as another supervisorial district, but the aproach of it is solely within my supervisorial district, the community of Lennox, which, up to yesterday, as Mayor England, mayor of Inglewood, said, used to be in the county area, but it was annexed to the city of Inglewood, which is right on the other side of the street, on Yukon, and was county territory. The unincorporated territory also is east of here, as well as closer to the

airport. So I have a direct responsibility to the citizens living in the unincorporated territory, the county, who look to me as their spokesman in municipal affairs to present these problems to you, and then I also have a responsibility—I used to be a member of the city council of Los Angeles, which—and I have supported, as a member of the council, all the bond issues to build the International Airport, and to support their administration. I am extremely proud of the International Airport and its administration and its members of its board of commissioners. I know them personally and, without a doubt—and we wanted to make it the finest airport in the world.

Now, I feel that this committee has a real responsibility to the people, not primarily only here in Los Angeles County, but in every major metropolitan area, for this reason. The opinion that you have before you indicates this. I believe that local government should assume its responsibility when it has its power, and I do not believe in asking the Federal Government to work out our problems if we should solve them. The local city council, the local board of supervisors, the legislature of the State—I certainly believe that we who are elected by the people should solve our own problems if we have the authority and the responsibility to do it, but, as you notice, under a formal opinion written by Harold W. Kennedy, of November 17 of 1959, I asked him:

Can the board of supervisors establish a maximum decibel rating standard which must not be exceeded by the aircraft in order to fly over county unincorporated areas, when the operation of a jet aircraft, under the conditions described above, creates a serious hazard to the people living under the approaches and changeoff areas through increased danger of potential air crashes and by objects falling off and from these aircraft, would the board of supervisors have the power to establish regulations for flight over these aircraft over county unincorporated territory?

Then another question:

Would the board of supervisors have the power to establish aerial rights-of-way at prescribed heights, then my first question, was the operation of the jet aircraft in landing and takeoff and the international airport produces such excessive noise that the noise constitutes a nuisance of such magnitude that it seriously disrupts the normal life of a community, does the board of supervisors have the power to regulate the amount of noise which the jet aircraft can produce while passing over county unincorporated territory?

Those are my four questions, and the answer came back very straight and quoted the cases that you mentioned, and other cases which I showed the committee, that this power of regulating aircraft solely rests with the Federal Government, and the Federal Government, the Congress of the United States, has delegated this to the Federal Aviation Agency.

Now, I feel that—I was born in Los Angeles. I remember when the airport was Mines Field, and all the people who lived here—and I lived rather close to the airport, a few miles away, I feel that the people, when they moved here, they were used to the flight pattern of their regular piston engine airplane and they knew when they moved in the area they are going to have a considerable amount of noise. Anyone who would live near an airport would assume that. The air traffic and the streets that feed into the airport, such as Century Boulevard and Imperial, that have heavy traffic there.

Now, this was common knowledge and everyone enjoys living in this area. This southwest area of Los Angeles County is one of the finest communities as far as center of location that there is in our

whole community. The weather, the convenience, the transportation, the centers of cultural interest, of recreational interest, close to the harbor and the beaches—this is a great place to live.

Now, up to the time of January of 1959, I never received—and I have spent 14 years in local government—three terms on the city council, two terms on the board of supervisors—I never have received a complaint about the noise of aircraft or aircraft problems except the ones that the supervisor's district—"Mr. Hahn, it makes me—I wish you'd widen the street or get some more signals here," or "How about that train that passes at Aviation? There should be a grade separation." Primarily the problems that I received were traffic problems of people going to the airport or returning from it.

Now, since January 1959, we have been bombarded with problems of the terrible noise of jet aircraft. You members of the committee, you are familiar with it. For me to sit here and tell you of the noise, and I am quite surprised that there is a lack of aircraft noise today. Generally you might be out here and you hear the boom-boom-boom-boom [applause]. But the weather might be the cause of that, which I know that no one can predict—the weather.

Now, for us to tell you the sound of a jet aircraft would be ridiculous. You are familiar with that, being close to the other airport.

I feel that the Federal Government can do two or three things. First of all, I want you to know that I am not asking you to do something that I wouldn't take upon myself to do as a representative of the people. I have written to the United Aircraft Co., who built the engine, and called to their attention the fact that—which is in East Hartford, Conn.—November 13th of 1957, I wrote to Mr. H. M. Homer, the chairman of their board, telling him that I think it is their primary responsibility to develop a quieter engine and to call to his attention that he had a contract, his company had a contract with this board of supervisors of this county to develop electronic vote tallying machines, and the board of supervisors—they were glad to get a contract from the board to develop vote tallying electronic machines.

So I called it to their attention, that if they can do this, certainly they can work a little bit better on developing a quieter engine, and they developed the engines for major airlines. And he wrote me a letter, working on this for the past 4 or 5 years on research and engineering and spent millions of dollars on it, but because of the basic nature of the jet engine and the tremendous power involved and despite the major effort put into this noise suppression by the plane manufacturers as well as by us, the sound level of these airplanes is still in some instances high, although the noise is considerably less than it would have been had these efforts not been undertaken.

So I have written to him 1959, November, to do something. Now, here is where I think Congress can help, and your committee can help. I think that either through your inherent powers vested in you by the Constitution of the United States to appropriate and to make the laws, appropriate funds and to make the laws of our land, that Congress, over a period of years, historically can provide research funds for various developments, and you can assist in this field of a quieter engine, whatever it takes. I am speaking as a layman. I am not an engineer. I am not a scientist. But whatever it takes to do it, then I think your committee can do that.

Secondly, I think that you can work with local government in developing, if necessary, rules and regulations for aircraft. Maybe it might be wise, and this isn't right for me, to tell a Congressman what to do in this field of legislation, but I am just suggesting this. Maybe Congress is given too much of its power to—these agencies have no checks and balances and are issuing legislative rules, regulations, without going through the due processes of legislative debate by the Congress of the United States. Maybe that should be reviewed by you, the basic laws setting up these independent agencies, so that they will be more responsive to the needs of a community.

Thirdly, I think that maybe your committee can help plan for the future. I think that we should, in major metropolitan areas, plan additional airports in remote areas for the national security as well as for convenience of the public, and in doing that perhaps the Congress can assist local governments in the United States, especially major centers of population that have terriffic problems of mass transportation, to communicate its people to an airport by a mass rapid transportation system. So, both through airfield and transportation we can have some advance planning for our airports.

Now, members of the committee, I have filed with you these three reports. I have told you what I think your committee can do. I appreciate sincerely that you have taken the time to be here. I have American Government and political science in college. I think that the students here at Morningside High School—I wish all the social science classes and classes in government and history of this great community could actually be here today. I was thinking what a fine thing, to see actually a congressional committee, Members of Congress of the United States, with all the power that is invested in you gentlemen as representatives of the people, actually to come here to our community. This is a historic day, I believe, for the people of this community, and especially of this high school, to have right here Members of Congress from the various sections of our country, the men who are delegated to the awesome responsibility of governing America, and I think this is a tremendous lesson in democracy, and I want to thank each of the committee members for coming here, especially when none of you here are from California, and that you have taken extra efforts to be here.

Thank you very much, Mr. Moulder and members of the committee.

Mr. MOULDER. Mr. Hahn, we want to thank you for the compliment in your remarks and the fine statements you have made, and your problem here is just as much our duty as Members of Congress as though were were from this area. In fact, the people are our bosses. We work and are hired by them. We are subject to their will, wherever they may be.

Mr. Brock, do you have any questions?

Mr. BROCK. Just to compliment you on your statement, Mr. Hahn, and to say that this is my first visit to Los Angeles, to study this problem, but that I will be back in your fair city to study another problem because I am on the Committee on Health and Safety and you do have a problem of smog here that I will be back on. Thank you.

Mr. HAHN. I might say in answer to the distinguished Congressman, this has nothing to do with the aircraft problem, that members

of the board of supervisors are, under the State law, the directors of the Air Pollution Control District. It is our job to clean up the smog, but we are going to have you help us there, too, because it is still here and I hope some of the gentlemen will come back to us. The heart of my district is Exposition Park. The new Sports Arena is there. We are going to have a small convention there in July. I hope you will come back for that.

Mr. MOULDER. Mr. Derounian, any questions?

Mr. DEROUNIAN. Yes.

Mr. Hahn, I think we are all agreed now that there is authority in law to try to alleviate the noise problem, and the protection of people and property on the ground as vested in the Federal Aviation Act of 1958, and I am quoting from the testimony of Mr. Quesada on August 26, last, before our committee, where he is talking about crop dusting, protection of persons on the ground from crop dusting, and eventually he says:

> This authority is currently vested in the Administrator by section 307(c) of the Federal Aviation Act of 1958—

and he is talking about broader authority contemplating protection of persons and property, so that is where the power is. We have given it to him. He admits it. And we will be riding herd on this.

Mr. HAHN. I might just finish by saying this: Since I am a student of government and, like you say, you Members of the Congress have the tremendous responsibility here, and with all the problems that are approaching Congress, it might be, though, that the previous laws passed by previous Congresses have delegated too much to Mr. Quesada or this agency. It might be that your committee would like to reexamine the very setup of this agency. I have written Mr. Quesada several times and have several answers back from him, and I will be glad to submit to the committee this correspondence. I feel that almost the problem of controlling the entire airplane, air transportation problem is too enormous for one man and one decision coming out of an agency such as that. It might be that there has to be a broader look at his functions, and the powers you have vested in that one agency, and it might be that Congress would either have to set up additional regulations or return some of the powers that you have delegated to him to the Congress, so that the rights of the people are more protected.

Mr. MOULDER. I want to say I agree with you in that respect because the Constitution does delegate the authority to the Congress of the United States to regulate commerce. Because of the complexities and the many detailed problems involved, Congress has delegated to a number of regulatory agencies the authority and rulemaking power, and decisions which they are in effect acting as agents for Congress and I agree with you. I think there is a lack of direct supervision over these regulatory agencies by Congress, and that they are not responsive to the will of the people.

Mr. Brock?

Mr. BROCK. Just one more question. Mr. Hahn, we just heard a landing. Is that a fair sample of the landing of normal aircraft?

Mr. HAHN. I would say maybe not. I mean, I—like I have been over here at the point where one time almost—there is a drive-in theater right back of us, right across the street from here, that some-

times you would think almost that aircraft would hit it, being that low. Now, since the agency, since the Health and Welfare Committee of Inglewood has stated all this tremendous interest in it, they have regulated so that their flight pattern over Downey, which is approximately 10 miles to 12 miles easterly here, that it is increased so that they are coming in at a higher level, so the noise is not as severe as it used to be. But at the same time, today, what I have heard today is not the usual sound.

Recently we had a dedication over at Lennox Park, a week ago Saturday, which is a quarter of a mile from the airport. We had to stop our program several times while the jet aircraft were landing, and the noise was much more severe then, just 2 weeks ago, than it is today. Now, it might be because of the curtains here, or this auditorium that we are not getting the full effect, but the sound today has not been, to my judgment, what normal, everyday traffic will be here, and when you come out here in July, certainly with all the aircraft coming in here, I am sure you will hear much more severe sounds than we are hearing today. I don't know why, but it doesn't seem as loud today.

Mr. MOULDER. Thank you, Mr. Hahn.

Off the record.

(Discussion off the record.)

Mr. MOULDER. The committee will stand in recess for a period of 5 minutes.

(Recess.)

Mr. MOULDER. The committee will please be in order.

The next witness or person appearing before the committee for the purpose of making a statement and giving their recommendations and suggestions is Dorothy Brown, president of the Citizens' Health & Welfare Council. Mrs. Brown.

STATEMENT OF MRS. DOROTHY BROWN, PRESIDENT, CITIZENS' HEALTH & WELFARE COUNCIL, INC.

Mrs. BROWN. Gentlemen of the Congress, may I be seated?

Mr. MOULDER. Certainly.

Mrs. BROWN. My name is Dorothy Brown. I am president of the Citizens' Health & Welfare Council, Inc. You gentlemen of the congressional hearing committee are an answer to our prayers. May I bid you welcome from 100,000 people in this area who are blasted with this terrible noise nuisance from the new jet age. May I say the Citizens' Health & Welfare Council is not against progress, but progress of the jet age must have its proper place, which is not over our heads above dense populations.

In the beginning of this organization I was given this "Airport and Its Neighbors" by General Doolittle from "Space Technology." I called him personally and told him of our plight, and he, in turn, volunteered this information. He also stated at that time that he stood the same as he had in 1952, that all superaircraft, continental and transcontinental, should definitely not be over populated areas.

Our council was formed June 19 by a group of room mothers from St. Eugene's School in Los Angeles, Van Ness and 97th Streets, which is one block from my home in Inglewood. Our dense popu-

lation is solid from Downey as the crow flies, or the jets, into Los Angeles International Airport.

After the terrible whining of two jets had me with my fingers in my ears and pressured to the floor, I decided I could not stand this noise, and we, in this district where the planes make their sharp descent in the glide paths which start at Western, 975 feet over my house at 750 feet and so on to 50 feet over the Felton Avenue School before landing at the airport, decided to do something.

I called Mr. Fred Jones, our councilman. I called a priest at the school. I asked the help of a lawyer, and the Inglewood daily newspaper. On learning of our stand as room mothers, this newspaper put us into business. Our room mothers brought the men to our meetings. We elected officers. We became the Citizens' Health & Welfare Council, Inc., a nonprofit, nonpolitical organization. We had our first mass meeting in July, on the 8th, which about 1,000 people attended. We started our organization with petitions which we are presenting for your information today.

These jets were coming in so low, these jets are three stories high, and you take a plane coming in below the glidepath—well, it left very little margin from the 750 feet above my home and St. Eugene's School below. These planes fly at 180 to 200 miles per hour, then throw their flaps down, shake our homes, and the earth. We cannot sleep, read, relax, nor live like normal people, and we have not for 15 months. It is getting worse because of the increase in flights.

At the mass meeting I asked our people to delay legal action, that I believed in our U.S. Constitution, and that we would contact our President, Vice President, Congress, and the officials of the State, county, and cities. Our Inglewood officials were present at this first meeting. Mayor England and Mr. Walter Hahn, city administrator, and the city council, have been active in this noise nuisance from our beginning as CHWC.

Flaps began to fall from these jets in July and August of 1959. I then called President Eisenhower to protest, long distance. I could not reach him, but I got Press Secretary Hagerty's secretary. She told me to call Mr. E. R. Quesada, which I tried to do. Our petition was sent to our President, and loads of other information was directed to Quesada. Since he was not there, I was referred to Mr. D. B. Thomas, Administrator of the CAA, whose title now is Director of Air Traffic Management.

I told him we had 4,000 children on 73 acres just right here where you gentlemen are today. Then, straight as the jet flies over three other public schools, not to mention a Christian school, and about 7,000 children are in this very worst, most critical part of the glidepaths. I begged Mr. Thomas to come and hear and see this for himself. We were worried from the noise as well as the danger to the students, particularly when school started.

Mr. Thomas came out immediately and showed concern. He told the Los Angeles Noise & Sound Abatement Committee he was here due to my S O S. He asked the Sound Abatement Committee to stop the easterly takeoffs due to the terrible hazard of 17,500 gallons of fuel in enormous planes over this heavily populated area. Why, if one of these jets had to crashland as the DC–7 crashed into the Irish cemetery, with 6,000 gallons of fuel, what do you think would happen

to the people in this area? If it landed on a school, hundreds of children would be cooked, outright slaughtered, as bad or worse than any battlefield we have ever heard about.

I plead at every sound-abatement meeting for airlines to stop this easterly takeoff and I have pictured this to them. One gentleman from an airline told me bluntly that jets were certified to carry the heavy load, "They are certified safe by the FAA." I told him, as I am telling your committee, everyone who knows of this problem, especially the airlines, is morally responsible to see that these easterly takeoffs be stopped immediately. There never has been a mechanical plane or jet made that was infallible.

We must not kid ourselves, but instead face honest, down-to-earth facts. These planes are over schools, homes, churches, and businesses 50 to 150 feet trying to get above us merely to take an extra 5,000 pounds of freight, passengers, or fuel, all considered more payload.

I have had Mr. Thomas out here. Congressman Roosevelt flew in to speak at our September 21 meeting. He stated then, at the Felton Avenue School, that this was definitely an emergency and we should ask for a congressional investigation. Congressman King had asked Mr. Roosevelt to explore our problems while he was here.

At the next meeting Charles Chapel, assemblyman, stated this was strictly a Federal problem. Then, at the Town Hall Forum on October the 26th, Mr. Francis Fox, airport manager, confirmed that incoming jets will use two new runways west of downtown Inglewood when necessary. Lynn Hink, of the FAA, said jets were operated on a certificate of financial necessity before jet noise levels were sufficiently reduced to meet the promises made by manufacturers. This, also, in 1952, was a known fact that these noises were so terribly great that this should never have been brought upon the people.

Mr. King met with 150 CHWC members December 10, and said he would ask for a congressional hearing.

On January the 8th, at the sound abatement committee meeting, I asked Mr. Don Belding, to cooperate with our organization by asking to have the glidepath raised to bring these jets in at a height that would allow our people to "start living decently again." I said Inglewood would be a blighted area. He became enraged because I asked him if the airport terminal is being built in the proper place, thinking everything should be done to make it possible for people beneath the flightpath to live more normally. He said we have no business buying in the glidepath nor to put schools here. I told him I could go back to the days when my grandparents were here, long before Mines Field. Then industry was brought in by the war and people began building close to the airport. Schools had owned land years before jets came. The airport, the cities, and the schools were paying no attention to the Doolittle report which warned them all 8 years ago that they should prepare for this very thing, superairports for superplanes, about a dozen in the country for continental and transcontinental flights.

Planes should not come over heavy populations. Mr. Belding does not want to face facts. If this airport is to continue to serve these jets, the only way I can see it will be possible is to bring them in from the west and land from the west. I understand Los Angeles International Airport has purchased land to the ocean. Then use it. Either ground these jets or bring them in at Ontario until they are properly prepared here at International.

Not long ago, 2 weeks ago or so, a jet dropped a fuel pod on a 4-year-old boy in his backyard; it just missed killing him; it put him in the hospital. A week later a cake of ice fell in the play yard of Jefferson School in Lennox, which could easily have killed children who were playing. Fortunately, there was no one in the yard. The next thing may be a jet crashing on the population.

We ask you to initiate legislation immediately to stop jet flights at International Airport until they can be brought in from the west and take off to the west. If this cannot be done, move them for good.

Secondly, easterly takeoffs must be stopped at once. We also feel that everything that Dr. Berke has asked for is a very fine request, and that we go and want to leave you with this feeling: that we know that things cannot be done overnight, and we have never wanted to be a demanding group and an unreasonable group, and these previous statements as to my requests, I feel that we should wait at least a reasonable length of time to see that these things are put into effect, but in the meantime I do ask you, especially since this 438 regulation came into effect on April the 4th, which has proven to us that there is absolutely no strength to it, that these planes have the following day, the day of the 4th, and from that time on conditions became worse. Today is one of our quietest days we have had in months. [Applause.]

As you know, I feel very deeply toward this, and it is only out of desperation that this organization was formed. I do feel that the people at the airport and the airlines if they made some real grave efforts, could alleviate the noise on the ground, and they could take away the hazard and the danger by establishing something. I have heard the airport officials say that they could not come in from the west or take off into the west because of a hazard. Yet they have come in from the east and taken off into the east with a minute to spare in many cases, and we have seen it ourselves. So this does not prove itself.

I feel that this has been a matter of greed commercially, and I feel that our Congress definitely must stop this situation; that we have tried to be fair, but in these 15 months, I do not think we should be asked to go any longer with this terrible condition over us, and so that they can punish us any way they please at any time they please, and that we are to sit and take it. Our lives and our children are at stake, and that is why we as mothers started this.

Mr. MOULDER. You certainly are to be commended for the good work you are doing, Mrs Brown, and we certainly appreciate your very impressive and fine statement you have made before the committee, and we hope that we, too, can assist to solve this problem as you have requested.

Mrs. BROWN. Thank you.

Mr. MOULDER. Mr. Brock, do you have any questions of Mrs. Brown?

Mr. BROCK. Just an observation. Mrs. Brown, you stated that jets should be taken from population centers and that we should do that. However, yesterday we were in San Francisco holding hearings, and I am not acquainted with San Francisco because I stated this was my first trip out here, but we learned in testimony yesterday that although people are fully aware that the planes will come in over Brewer Island wherever that might be, 40,000 homes are being contemplated under construction within the near future. We also learned

that within 1,000 feet they are going to build an apartment house on the threshold of the take-off, so there isn't much that the Congress or we as members of an investigative committee can do about population centers.

If you will travel to Chicago you will find that O'Hare Field is out in the prairies at the present time, but if you will then go back to Chicago 10 years from now you will find it completely enveloped with housing developments. I don't believe that we, as Congressmen, can say that you folks can't build at O'Hare Airport. It is an almost impossible problem. We have to bring our passengers into metropolitan cities such as Los Angeles, and we have to take them back out.

Mrs. BROWN. Well, Congressman, on the drawing boards at Douglas right at the present moment—in fact, Mr. Douglas himself, when he was speaking to Mr. Quesada some time ago, was in the Aviation Weekly, and he stated that when he came out with the DC–8, that he certainly perhaps should have come out with this new missile type of craft which will, they feel, within the next 5 years at least, be shooting back and forth across the country in 45 minutes to an hour. Do you think that this present airport here is the location for such things as that? It is an impossibility. These are the things that must be thought about in the next 10 years. We have a thermal airport brochure which was made up by the Riverside County in regard to thermal airports out here in the desert, and in this they give us full statistics, and we would like to present you with one of these to take back, which tells in February of 1959 that they were working with the Los Angeles Airport Commission, and it tells a number of flights daily that will be coming into this airport, which is going to be a terrific thing. In fact, they believe they will be coming in, within 5 years, and taking off every minute simultaneously through the day.

Do you think that people can stand this pressure? It will be impossible because of this reason: If this glide path cannot be raised as the airport has stated and the Los Angeles Noise and Sound Abatement Committee with the size and increase in aircraft that are coming in, plus the freight lines that are now being brought about, even the railroad and the trucking industry and the aviation industry intend to bring this over our heads very shortly in the new CL–44 aircraft, which is made by Canadair in Canada, and this has a sweepback tail where the carloads of freight can be just driven in, and this particular airplane will carry over two carloads of freight.

Now, when the airlines and the trucking business get into this, what do you think this is going to be? It is just going to be clouds above a heavily populated area. The danger will increase many, many, many fold, and that is exactly what was warned about in this book, and we have some articles which we will include on some of these things which are quotes from this very thing, which has made it so definite in our minds, in our aims, and in our objects, and the very beginning of this group. We asked that the glide path be raised to a minimum where people could live comfortably underneath it. We didn't actually state the number of feet. We also asked that perhaps there would be a strip purchased for the full length of the glide slope, even it it went as far as Downey, something like an airbreak, so that the planes landing—and you gentlemen fly constantly—and as I have maintained, I am very serious about the ones flying above me. I pray

for them many times, that they stay up there. I don't want them down on me.

But the main thing is that these planes, their most critical area is on their landings and their takeoffs, and we are the most heavily populated area throughout the United States and possibly the world in this area through here where these flights are coming in, and being this is the fact, that unless there can be a westerly takeoff and so they can come in from the west with the type of planes that will be coming out in the future and with the amount of flights that will be coming in, then Los Angeles is spending a terrific amount of money and so is the Federal Government on something that is going to be obsolete in 1 to 10 years.

Mr. MOULDER. I Think you made a very profound prophecy about the future and the need for isolated airport facilities for jetflights, and I think that as traffic grows and our need grows along that line, that that will probably have to be done.

Thank you very much, Mrs. Brown.

Mrs. BROWN. May I present you with these to look at at your leisure, and we would like to collect these petitions. We have in here over 8,000 petitions here, and if you would like photostatic copies of these we can have them made, but due to our——

Mr. DEROUNIAN. We don't need them.

Mr. MOULDER. If you wish to present them, we will be happy to take them. No, we do not need the photostats.

Mrs. BROWN. These we don't want to let out of our hands.

Mr. MOULDER. You want us to make photostatic copies and return the originals to you?

Mrs. BROWN. We would gladly do it for you if you would like to take them back with you.

Mr. BROCK. I think we can study them here.

Mrs. BROWN. Thank you.

(The petition was headed as follows:)

CITIZENS HEALTH AND WELFARE COUNCIL

We, the undersigned residents and/or property owners in the area in proximity to the Los Angeles Airport, propose to bring to the attention, with all due respect, to the officials and representatives, the constant disturbance caused by air traffic jets.

[This petition was signed by more than 8,000 people.]

Mr. MOULDER. Thank you very much. The next witness we will hear before recess will be Mr. Joseph Joblin.

STATEMENT OF JOSEPH JOBLIN, ATTORNEY AT LAW

Mr. JOBLIN. Mr. Chairman, members of the committee, I will make this brief and state that we feel that there is something basically wrong with the approach to this entire problem. We feel that it is one sided entirely and does not include the protection of the other side. Every rule that has been promulgated, every offer that has been made to clean up this situation deals primarily with rules for the promotion of safety in flight with emphasis upon the comfort of passengers on board. There is certainly nothing wrong with that, and we are in favor of it; the more the better. However, there is another

side that has been, for the most part, ignored or treated as secondary, and that is the protection of the lives and safety, the peace and tranquility of persons on the ground.

This side should be considered at least equally with the protection and safety and comfort in flight. There are two striking examples that I wish to mention. One of them relates to the easterly flights. I know you have heard a great deal about it, but I would like to mention it in connection with the point I am trying to make at this time.

When the FAA proposed the regulation that you have heard discussed here, banning easterly flights during certain hours of the night, under certain wind conditions, we took it for granted that was intended to protect the persons on the ground. Of course, it is obvious that when an easterly flight takes place it increases the danger to the safety and naturally increases the noise very, very much.

However, in its final form, this proposed rule was entirely eliminated because it was consistent, they said, with the safety or flight or the regulation of flights and the services of the aircraft carriers. But what about the effect on the people who live here, as far as these easterly takeoffs are concerned? That was apparently not considered.

Again, the FAA had in mind only the safety and flight of the planes or the convenience of the aircraft carriers.

Now, no one of us would say that a plane should take off to the west when the wind conditions are bad, but the answer to that particular problem should not have been decided solely from the standpoint of what is more convenient for the airlines or what is more convenient for the safety in flight of the passengers on board. We had a right to be considered just as much. The flights under that condition should have been delayed until the wind conditions were favorable for takeoff to the west instead of jeopardizing so much more the lives and safety and the peace and quiet of the people on the ground.

We see and hear of flights delayed and canceled every day everywhere in the country because of weather conditions or mechanical conditions of the plane, and so forth. Why not consider equally important in deciding to delay or cancel a flight the question of the danger of that flight to the people on the ground? It applies especially to us near the airport. That is where I believe the FAA and all suggestions that have been made to this date fail to take into account the protection of the persons and property on the ground.

The second example that I wish to make in order to emphasize this point of mine is that there exists a strong division of authority and responsibility, and there is, of course, a great conflict of jurisdiction. Everyone, in plain words, has more or less passed the buck, yet we have heard here today that the FAA is primarily responsible and that the Congress of the United States has more or less exclusive jurisdiction. In my own mind, as an attorney, I question somewhat some of those flat statements. I believe that there is room for regulation in some areas of this problem by city, county, and State governments, but let's argue on the thesis that the FAA or the Congress of the United States has exclusive jurisdiction.

On the one hand, the FAA itself has asserted the right to control altitudes of flight, but will not insist upon a strict level of flight for the protection of persons on the ground. Again, their emphasis is

on altitude of flight only so far as safety in flight is concerned, which is fine with us; but we should have equal treatment, we on the ground, as far as determining altitude of flight is concerned.

The FAA also asserts its right to ground planes if not safe in flight, and to control the manufacture of all the features in a plane to make it more safe. Yet, and that is quoted in one of the papers submitted to you, the FAA has stated it is the responsibility of the manufacturers to reduce the outside noise of the planes so far as the protection of persons on the ground is concerned.

Now, if the FAA does take the responsibility of protecting the plane in flight, it owes the people on the ground, under the law that Congress has enacted, as much protection and as much consideration to protect them as far as noise and danger of the flight is concerned.

The answer to that may be—if I may make this suggestion, not facetiously, but merely to point up what I have in mind—we may need a two-man board to run the FAA, one man with his head in the air, the other man with his feet on the ground. I say that sincerely to emphasize the importance of legislating from the standpoint of protecting the rights of all the people, the people who fly and the people on the ground. They are one and the same, and they should be treated equally.

Thank you, gentlemen, for listening.

Mr. MOULDER. Thank you very much, Mr. Joblin.

Mr. BROCK. Mr. Chairman, I feel that the record should show that the committee has received these petitions and that you instruct the recording clerk to record the heading on the petition at this point in the record.

Mr. MOULDER. I think that a better place in the record would be following the testimony of Mrs. Brown. The petition signed by 8,000 or more people will appear in the record as typed at the heading of the petition following her testimony, and the statement that it is signed by more than 8,000 people.

Mr. DEROUNIAN. I just want to point out Mr. Joblin's accent on this investigatory problem is very well taken, and I can assure him that he will find that the FAA and everyone else is taking a greater and greater interest as to the people on the ground, at least from now on, or at least from last Labor Day on, when they had this problem at Idlewild in New York. It was an excellent statement.

Mr. MOULDER. The committee will recess until 1:15, if that is agreeable with everyone.

(Whereupon at 12:15 p.m., a recess was taken until 1:15 p.m. of the same day.)

AFTERNOON SESSION

Mr. MOULDER. The committee will be in order.

The next witness or person appearing before the committee to make a statement is Dr. Harold Santee, superintendent of the Inglewood schools.

Is Dr. Santee here?

Dr. BERKE. It is possible that Dr. Santee has not arrived yet.

Mr. MOULDER. That is all right. Is Mr. Roger Duitzman, airport commissioner, representing the Inglewood Chamber of Commerce, present in the hearing room?

(No response.)

Mr. MOULDER. Is Mr. William Hall present?

Mr. HALL. Yes.

Mr. MOULDER. Mr. Hall represents Lennox citizens group. We are glad to have you with us.

STATEMENT OF WILLIAM HALL, REPRESENTING A LENNOX CITIZENS GROUP

Mr. HALL. Mr. Moulder, Mr. Derounian, Mr. Brock, Lennox is the second most heavily populated 4 square miles, I should say, in California. It is an old community. We have been and number ourselves among the first settlements in California. For many years we were quite happy in our own general area there, and most of us had homes as far back as 1925 in that area. We gradually grew as California grew, and about 1927 one of our new neighbors was Mines Field. This Mines Field has grown along with Lennox, and eventually it became Los Angeles International Airport.

In expanding, Los Angeles International Airport and Lennox eventually were adjacent to each other as far as boundary is concerned. During this time I think that we were all happy, each with the other, but in 1959, the 29th of January, we were rudely invaded. We were invaded by jet aircraft.

We felt immediately, and we still do feel, that this was a violation of our constitutional rights. They were simply appropriated or taken from us without our permission. Of course, "progress" is a word that is mentioned many times in jet aircraft noise and problems of this kind, but we feel and still do feel, that progress should represent something to the people rather than money to an individual group or an individual. We, therefore, feel that there should be some regulation of this jet noise.

Now, a lot of people have talked about noise, but no one so far has mentioned how much noise. So, very briefly, I would like to quote from the airport's own authority. These people are outstanding accoustic engineers in the United States and they have made studies of the problems at Los Angeles International Airport, and also they made a study of the problem at the New York areas, and made studies of the airports and made studies of the Boeing 707; also, the DC–8. It has been and is their recommendation that at Los Angeles International Airport there should not be more than 60 perceived noise decibels at the airport boundary. So we can then assume that this 60 perceived noise decibels is a reasonable maximum noise level.

From this same report they indicate distances from the aircraft and the noise levels found there by their measurements, and reading from the charts we find that a great deal of the city of Lennox, that is, the area of Lennox, has been exposed to noise as high as 125 decibels.

Now, they also, in their report, tell us that every time you increase the noise decibels by three, you are doubling the sound. That is the sound that the human ear hears. So on this basis we feel like we have been subjected to approximately, in some areas, 20 times the amount of noise that is considered comfortable.

There is one other thing that seems outstanding in our community, and this is the result of and caused by noise. We call it nervous ten-

sion, and this is also frequently referred to in modern times as being something that most of us have to live with or tolerate. It seems that every time one of these jets approaches, your nervous system winds up like a clock, you could say, and then gradually unwinds as the noise fades away in the distance. We simply have to multiply this by the number of flights and we find that there is considerable wear and tear on any individual's nervous system due to noise.

Also in our investigations we have found that the city of Los Angeles has an ordinance prohibiting noise greater than 67 decibels, and we have been told this was specifically drafted for automobile laundries. However, we, of course, have no evidence of this kind of noise ordinance attempted to be enforced at the Los Angeles Airport even though it is operated by the city and is in the city of Los Angeles.

We also have much evidence published in books and reports from Columbia University, Northwestern University, indicating the human tolerance to noise, and the regulation of noise, to metabolism. These things, I think, are widely known. In other words, without going into lengthy detail and quoting paragraph by paragraph, I think that possibly you already understand and realize that we do have a noise problem.

Another thing that has been touched on several times today is depreciation of property values or inability to rent apartments or to rent houses that are for rent in this area, and we do have people who—and some of them are in the audience today—have apartments who have not been able to rent them as long as a year back. Some of them have been vacant so long that the owners of these places have, perhaps have had to take in some cases an extra job to support payments on these properties. This simply means to us that we have had something taken away from us that was very valuable, something that we treasured as our basic rights here in America.

Now, of course, I could go into many other details and would merely be repeating, I think, some of the things that have been said to you before. We could talk about the things the airport has done and we feel like they are a basic approach, but we also feel that some of the things the airport has done, like raising the glide pattern, glide path, were token procedures, and we are positive that they have not materially affected our noise problem. They have posted signs on the runways from the takeoff end which is usually about 90 percent of the time toward the west. These signs say, "Do not allow your plane to drift and cross the beach before making turns," and what not. But our prime problem is jet noise from approaches. The approach to the landing covers many miles of heavily, densely populated areas, and that is the principal complaint.

It is true that in magnitude easterly takeoffs are tremendous. They are nerve shaking, but we have primarily the constant daily approaches for landing which give us problems.

We would like, at this time, without going very much further into the problems, we would like to ask you for solutions. We feel that this is, after all, the prime purpose of the meeting, one like this, and we feel like this is the climax of about 15 months' effort on the part of citizens in several areas in this immediate vicinity.

We were ignorant in the beginning of where we should go for help, to whom we should look or ask for help, and now we have eliminated,

one by one, through various channels, all of our approaches, and we feel that we are now at the top. We feel that your committee can make realistic recommendations which we feel will be followed by the rest of the congressional committees and then, perhaps, by Congress itself, to really solve our problem. We feel that if we are going to zone ourselves on a local, county or city basis, whatever the case might be, into areas of noise, in manufacture of chemical fumes or some operation which is considered industrial, and would not readily and conveniently mix with the residential area, we feel if we are going to zone ourselves on that basis, then by the same token and by the same right we should be zoned on a national basis. We feel that since Congress has the authority to regulate interstate and foreign commerce and they have the authority and have granted it to the Federal Aviation Authority to regulate flight and safety of flight, they should therefore go ahead and finish the other 50 percent or the other half of their regulatory powers, which apparently at this time we feel have perhaps either been overlooked or not realized as being a necessity.

We feel that Congress should, through one of its recognized agencies, an agency that is broad enough to cover both areas of ground and flight, recognize our ground problems and zone for it. We feel that you should create legislation setting up a requirement for an airport insofar as its location is concerned so that this airport will be in an outlying area and will have a buffer zone and this buffer zone and the airport will thus be protected from any further encroachment.

I believe Mr. Brock mentioned O'Hare Airport. We feel like this is something that points up the fact that we should start now planning on a national basis for airport locations and airport zones, and for the future. The very next few years and possibly 10 years are going to see, as we all recognize, a tremendous advance in types of operation and number of operations. If we are properly zoned on a national basis, I mean a national basis this, another agency or perhaps the FAA, if it is broadened, and we would like to see someone else assisting or on an equal level with Mr. Quesada in this effort who can recognize and take steps to enforce legislation to protect these airports from encroachment and thereby protect the citizens from encroachment.

So we would at this time like to go on record as asking for this definite type of legislation, to create a National Airport Zoning Commission.

Thank you very much for your attention.

Mr. MOULDER. Thank you, Mr. Hall.

Do you have any questions of Mr. Hall, Mr. Brock?

Mr. BROCK. Mr. Chairman, one or two questions.

Mr. Hall, so that I might orient myself as to the Lennox area, and if you described in detail the position that Lennox holds in connection with this place where we are holding this hearing today or in connection with the international airport, I'm sorry, I was studying the records; but if you did not, would you orient me as to the position of the Lennox vicinity?

Mr. HALL. Yes, sir. Lennox is located directly east of the airport and extends to the next street west of where we are now located. It is an unincorporated area of Los Angeles County.

Mr. BROCK. Further, Mr. Hall, you stated in your testimony that there is a depreciation of property values. Has a study been conducted showing whether or not there is a general depreciation of property values, or is this a depreciation of property values on the isolated cases in which property has been transferred since the advent of the jet age here?

Mr. HALL. Sir, we have a, we would call it a petition, and on the petition there are signatures of approximately 50 real estate brokers and appraisers in this flight pattern area extending from east of this school clear out west to the edge of the airport. We have the signatures making the statement that property has been devaluated due to the flight pattern being overhead, that they find it extremely difficult to sell property in this area, and we have some detailed instances by a real estate appraiser who is now in the audience. Mr. Don Williams, and if you would allow him a few minutes to go through some of these cases we would be very happy to have him come up. It will only take him a few minutes to give you some actual instances where property has been depreciated, and how much, due to flight traffic overhead. Could we call Mr. Williams at this time?

Mr. BROCK. That is at the pleasure of my chairman. I have one more question, Mr. Hall.

You mentioned buffer zone or corridor, and I am not acquainted with this area; is there an area of nonresidential or park area in which we might change a flight pattern, bringing the flights over a nonresidential area coming into international airport?

Mr. HALL. No, sir. At this time there is no such park or nonresidential area that we could change. However, in the local plans there does appear to be what they call a century or east-west freeway which is coming up in the near future, and it has been suggested that this area could be widened sufficiently to take care of one buffer zone or flight pattern. This would go from probably a mile east of where we now are clear into the edge of the airport, and the buffer zone would be on each side of the freeway and it could be used for some nonresidential purposes, perhaps, heavy manufacturing or something like that.

Mr. BROCK. That is all I have, Mr. Chairman.

Mr. MOULDER. Mr. Derounian?

Mr. DEROUNIAN. Mr. Hall, you were mentioning a zoning commission to be set up. Now, did you mean that in its basic use of the words "local zoning" or did you just mean that the commission should be advisory to make sure that there are buffer zones in all these future airports?

Mr. HALL. No, sir; I mean that to be a definite group of people who would withhold approval of an airport unless it is properly located and/or buffered.

Mr. DEROUNIAN. Thank you.

Mr. HALL. I meant this to be an agency similar to the FAA or perhaps even to take advantage of the existing organization for economy purposes, but to have this specific-purpose zoning of airports and buffers—buffer areas around the airport so that it would not encroach upon residential areas, and they also, by the same token, could not then build residential areas right into the edge of the airport.

Mr. DEROUNIAN. Of course, the fact is that for all future airports that is being done now, buffer zones being put around the complete airport. That was done in Bullis International, but as to existing ones, you have got the problem such as the one you mentioned here.

Mr. HALL. Right.

Mr. DEROUNIAN. Thank you.

Mr. MOULDER. Mr. Hall, did you wish to ask or consult with Mr. Williams about the question?

Mr. HALL. I would like——

Mr. MOULDER. Mr. Williams, can you come forward, please?

A VOICE. Mr. Williams is not here. He will not return until 2 o'clock.

Mr. MOULDER. Thank you very much, Mr. Hall.

Mr. HALL. Thank you.

Mr. MOULDER. It has been suggested that Mr. Hall—Mr. Hall, if you will secure that information and submit it to the committee for the record.

Mr. HALL. I certainly will, sir.

Mr. MOULDER. Dr. Santee.

STATEMENT OF DR. HAROLD SANTEE, SUPERINTENDENT OF SCHOOLS, CITY OF INGLEWOOD, CALIF.

Mr. MOULDER. We are glad to have you with us, Dr. Santee.

Dr. SANTEE. Mr. Chairman, other members of the committee, may I present you with a copy of what I am going to say?

Mr. MOULDER. Yes, sir.

Dr. SANTEE. I do this primarily as I have a map attached to it.

Mr. MOULDER. Dr. Santee is superintendent of the Inglewood schools.

You may proceed, Dr. Santee.

Dr. SANTEE. Thank you, Mr. Chairman.

Might I make a couple of observations before I begin to go into this formally?

First, Supervisor Hahn this morning mentioned the experience which youngsters would have in witnessing this hearing, and I wanted you to know as a committee that our high school students are observing this today. We have had to restrict the length of time any one group could stay because it would more than overflow this auditorium, but they have all had an opportunity to have this experience today.

Mr. MOULDER. They are certainly welcome. We are proud that they are here.

Dr. SANTEE. We are very grateful to have the opportunity.

Secondly, there has been some discussion about the lack of jet noise here. I would like to explain that part of it might be the particular building in which we are, which is a concrete reinforced building, acoustically treated, and the amount of sound transmission through the ceiling and the walls would be less than in the usual frame-stucco-type building that we occupy as homes and as regular classrooms generally. So that might have something to do with the amount of noise we do not hear at the present time.

Now, I need first of all to establish the position which I am taking today as superintendent of schools, and I would therefore like to read from my notes.

In the school district and as representing the board of education of the school district we recognize the jurisdiction which is ours; and we wish to emphasize this fact and make it clearly understood that there are other governmental agencies locally and on up that have the broad concern of the problems of the community, and as a board of education and a school district we have the concern of the education of the boys and girls and their safety while they are under our control.

It has not been possible over the years for this school district to select new school sites and locations which will serve the community adequately and still be completely out of all flight patterns.

Our school district is somewhat larger than the city of Inglewood, and we actually have another airstrip which causes us a problem to the north, the Hughes Aircraft Corp. This is not a part of the discussion today, but I do want to observe that we have in our school district more than the international airport in terms of flight patterns.

We have, of course, during the years been concerned with the safety of the youngsters as aircraft passed overhead, but, in general, the propeller-driven planes did not seem to jeopardize the safety of our students and the noise rumble was such that disruption to our program was at a reasonable level.

The advent of the jet aircraft has created problems in safety and noise which did not formerly exist. It is our observation that the jetplanes generally pass more nearly over the schools located in this location, and it is of course a much more disruptive factor.

The four schools which are located on this site, which is approximately 75 acres in size, include a senior high school, a junior high school, an elementary school, and a cerebral palsy school. Next year we anticipate approximately 4,000 students will be housed in these 4 schools.

Now, from the standpoint of safety, the area located under the flight pattern has experienced the falling of airplane parts which could have, of course, caused serious injuries or deaths to individuals. While the possibility may be remote we feel, nevertheless, that an entire aircraft might also crash in the area.

When we consider these possibilities and, at the same time, think of our 4,000 students, we believe there is reason to give some thought to the possibility of maintaining a flight pattern which does not pass directly over our schools.

As for our instructional program, we must point out that oral communication becomes impossible each time a jet aircraft passes near our schools. This means that approximately 165 teachers and 4,000 students must stop all class discussion until the aircraft has progressed beyond the schools. The result of such disruption goes beyond the actual time involved in the passage of the aircraft and each class must again have its attention focused on what was being done before the interruption.

Our teachers tell us that as the number of jetplanes increases, they find classroom instruction increasingly difficult and it is their feeling that considerable loss in the educational program results.

I might comment that this is in the face of a sincere and devoted effort on the part of our teachers to improve and upgrade the quality of education, and of course, naturally we are much concerned about the quality of education which we have. You might be interested,

I would observe that each day in the normal day we lose about 1,500 student hours through these disruptions in this particular campus.

Now, as a school district we are not opposed to progress nor do we wish to take a position which will carry us beyond our jurisdiction. We are, however, extremely concerned about the safety of children and the quality of our educational program.

We have occasionally observed jet aircraft which passed Yukon Avenue. You have a map, but let me tell you it is the street that goes in front of this building, and at the time the airplanes were passing west at this point we have at times observed that they are north of Century Boulevard, which puts them over the Hollywood Park race track. I'm talking now—I'm speaking of jet aircraft. When these planes are north of Century Boulevard we find the noise somewhat more tolerable. The noise level is somewhat lower. And the safety of our youngsters in this location is not then involved.

Now, we, as a school district, have a great deal of community interest, and I am personally very much in agreement with most of the things that are said, but from the standpoint of the school district we must take the position of being primarily concerned with the educational program and the safety of our youngsters, and we feel that it would not be impossible, and in fact, quite possible, to move the air pattern enough to keep all planes, instead of an occasional jetplane, north of Century Boulevard, which would then reduce the noise level at this location, eliminate the safety factor, and evidently not jeopardize the landing of these craft because they occasionaly do this at the present time.

This doesn't solve the entire problem, but I am speaking from the standpoint of the school district.

In conclusion, might I simply say that this is the only suggestion as a school district which we have to the problem, and we would urge you to give very careful consideration to this particular facet of the entire problem.

Mr. MOULDER. Dr. Santee, we certainly do appreciate having the benefit of your statement, your advice, and your suggestions, which you made, and also appreciate your taking time to come before us and giving us this information.

Mr. Brock, do you have any questions?

Mr. BROCK. Only to say, Mr. Chairman, that I also appreciate the very cogent statement made by Dr. Santee.

Dr. SANTEE. Thank you. My pleasure.

Mr. MOULDER. Mr. Duitzman?

(No response.)

Mr. MOULDER. Then we will hear Mr. G. E. Dart, superintendent of the Lennox schools.

STATEMENT OF G. E. DART, SUPERINTENDENT OF THE LENNOX SCHOOLS

Mr. DART. I might say that I also have a map, so we'd like to present these to you.

Mr. MOULDER. Thank you very much, Mr. Dart.

Mr. DART. I'm going to be very brief, as I want to say in preface that I am very impressed with the sincerity of you gentlemen, and I am sure that if anything can be done about this problem you will do

it, and I think that that should be expressed sometime during the meeting.

The Lennox Elementary School District is most vitally concerned with the problem of aircraft noise and safety adjacent to the Los Angeles International Airport. The Lennox School District bounds the International Airport on the east or approach area and extends along the eastern side of the airport from 104th Street to Imperial Boulevard.

As you can see from the map here we have drawn, as the map shows it, the Lennox School District has three elementary schools directly under the landing approach path of incoming aircraft. These schools are as follows: Whelan, 330 pupils, located 1.3 miles due east of the runways; Jefferson, 480 pupils, located 0.6 mile from the airport; and Felton School, 552 pupils, one-tenth of a mile or about 530 feet from the eastern airport runway boundary. At the last-mentioned school, aircraft pass over the buildings at not more than 150 feet and, at times, at a lesser altitude.

The noise factor at these schools is of severe intensity. The school district has not taken decibel meter readings on the noise, but after the passage of either jet or conventional aircraft of 4-engine propeller type, all auditory activity in these three school classrooms cease. This means that any activity of these school children involving listening is interrupted during the time any large aircraft passes above. In particular, jet aircraft of any number of motors will completely disrupt all listening.

The Lennox district has taken periodic checks of the actual time loss from the school day because of the interruption of activities involving listening. The time estimated has ranged from not less than 10 minutes per classroom to 20 minutes per classroom per day. This amount of time is that actually taken for the passage of aircraft overhead at an estimated 15 seconds per aircraft.

It was estimated that, of all aircraft passing overhead, between 40 and 60 per day interrupted activities in the classroom. If the activity did not involve listening, passage was not counted. Again, this estimate of loss of time was for actual passage of the aircraft. It did not count, as Dr. Santee pointed out, time of interruption involved in having children return to concentration after an interruption.

Cumulatively, the school system in Lennox has lost between 700 and 1,400 minutes per day of actual instruction time. There have been many days when at least one elementary lesson per classroom has been totally lost because of the passing of aircraft and the attendant noise.

There is undoubtedly some interference other than time interruption with the learning process other than actual noise factor, that is the disruption of a classroom. Consultants from the University of Southern California have stated that aircraft passing continually over the schools where pupils study is certain to have some effect on the pupil's total effort to learn. However, we in the Lennox School District have not been able to measure this and we have been able to measure such factors as increase in tension of nervousness due to the noise. Very small children will cover their ears when jet aircraft pass over their head, and there must be some effect upon the nervous system.

Aside from the actual loss of schooltime and the physiological inter-

ference with learning, there is an acute factor of some danger to children underneath approaching aircraft. On March 21—Mrs. Brown has already referred to this—we had a piece of ice weighing approximately 10 pounds fall directly on our playground. This is the only time this has happened. Not that ice hasn't fallen from aircraft, but fortunately hasn't fallen on our school grounds. Children were just passing and just beginning to go to lunch, at that time, and so fortunately there was no one in the playground. This piece of ice was actually observed by the teacher who saw it fall off the airplane; it was that close, when they come over the school you can easily see the ice fall off.

Now, it is not the desire of the Lennox School District or our board of trustees or me as an individual to maximize the inconvenience or the interference with the normal pursuits of individuals and institutions or the actual hazards to life that are involved in living close to this airport, and we have, I might say in conclusion, our board of trustees, the people in our community. Mrs. Brown has met with us, we have tried to think of some actual solution to this problem. We don't have any solutions. I, as a representative, would not want to recommend to the committee, but we want you to know that we would sincerely appreciate any efforts that can be done to solve this problem.

Mr. MOULDER. Thank you very much. Very fine statement. We will appreciate having the benefit of your information. I didn't hear you make on your statement that in connection with the incident of the ice falling from the airplane that the authorities at the Los Angeles International Airport were notified and an inquiry was made about it and no reply has been received?

Mr. DART. We gave you a copy of the letter that, on March 24, was sent to Francis Fox, general manager of the Los Angeles International Airport.

Mr. MOULDER. Thank you very much.

Do you have any questions, Mr. Brock?

Mr. BROCK. No.

Mr. MOULDER. Mr. Derounian?

Mr. DEROUNIAN. No.

Mr. MOULDER. Mr. Duitzman? Has Mr. Duitzman arrived?

(No response.)

Mr. MOULDER. If not, we will hear Mr. Victor DeRose, of the Lennox Chamber of Commerce.

STATEMENT OF VICTOR DeROSE, OF THE LENNOX CHAMBER OF COMMERCE, LENNOX, CALIF.

Mr. DEROSE. Gentlemen, to go over the situation that I have in mind would be a repetition of what we have heard from some of these other speakers. I believe the reports rendered you by Mr. Jones, Councilman Jones, and Supervisor Hahn, together with Mrs. Brown, have pretty well cross sectioned the entire story of this noise situation, and we must agree, and I think we do agree, that there is a problem.

Now, whenever there is a problem it must be solved. It wasn't so long ago, that I don't know whether you gentlemen know or not, but the area just east of the airport was threatened at that time with one of the construction companies building these planes. When they

started testing their planes, they used to come over the homes up to about as far as Burin and probably up as far as Inglewood Avenue. At that time the chamber of commerce intervened into that situation and they were successful in solving this problem by having these jets tested out in the desert, and that has been eliminated. There is no more training of the jets in that particular area. They were coming so close to the top of the buildings sometimes that you thought that they were taking the roof right off with them, but they eliminated that.

Now, that was a problem that was eliminated. If a problem can be eliminated in one way, other problems can be eliminated in other ways. What progress has been made that you can give to the people or show the people that there is going to be an elimination of this noise? It appears to me that this situation is a great deal like the study of cancer. There are millions and millions of dollars being put into research of cancer, and that has gone over for a period of years, and there is still a tremendous death caused by cancer.

Now, we don't want to instigate another movement here whereby it will be a case of perhaps starting to make a research of the discovery of ulcers under this airplane, and there certainly will be if this condition continues. We will have a condition there that we can't eliminate, and the fact that there is so little progress made, and the gentleman from New York said at the outset of this meeting today that there was no doubt or there would not by any chance be a removal of the airport from Los Angeles. We quite agree with the gentleman from New York. Naturally there is so much money behind it that you couldn't very well concede the idea of moving out the airport from Los Angeles out to some other part. But we are not speaking of the airport, nor are we speaking of the propeller planes. I think the question in mind today is the elimination of the noise made by the jet planes.

Now, I quite concur with Supervisor Hahn that there should be a closer working between the Government itself and with the local government. If there can be some method whereby the elimination of this jet plane from landing out here at the International Airport is not going to necessitate the fact that we have got to move the airport, but we certainly could move the jet landings out into the desert or some remote area, as Mr. Hahn said this morning, that would take away the tremendous loss of not only property values and feeling of the personnel, the health of the people living in the path of the airplanes, and so forth and so on, but taking into consideration, with our methods of traffic control today and transportation, why could it not be that these jets could land into the desert and the passengers brought into Los Angeles by rapid transit? The gentleman from New York knows how fast you can get from 42d Street to 225th Street by an express on the subway. Well, here, if we had a monorail system, why, I am sure that you could get from Lancaster or Palmdale to the heart of Los Angeles in a pretty quick time, possibly as quick a period of time as what it takes now to take the passengers from the Los Angeles International into the heart of Los Angeles by bus because of our traffic transportation.

Those are things I think that should be considered and studied more carefully than just depending upon the research of some of these manufacturers in stating that they are spending millions but

they have come up with no idea whatsoever of what is going to be done. If we do increase the traffic of 150 to 200 planes a day, possibly, when this is fully developed, and that is what they are building the airport for, spending millions of dollars there developing an airport. They are not developing the airport for a playground. They are developing it in anticipation of a tremendous growth in the future.

Now, if this tremendous growth takes place, how in the world are we going to stand this noise coming in at the enormous amount of landings per day? If it is as bad as it is today, what is it going to be when there are tremendous landings there?

Another thing that has often come to my mind, we are trying to protect ourselves from all angles against invasion or perhaps some future attack or something of that kind. Why put all your eggs in one basket and have them here in an area where there is approximately 6 million people? If you are going to concentrate and have all your jet business here and then some foreign element decided to come over here and attack us, what is going to be the first point of attack? It is going to be where the jet center is. If that jet center were out in the desert somewhere, why, they would probably strike there first, giving us half a chance to protect ourselves.

Now, those are things I think should be taken into consideration, and further than that, I can't add to what the other people that proceeded me have said. I concur with everything they say, and we certainly do hope that something will be done by this committee to solve this problem, and it was stated it wouldn't be today nor tomorrow nor a month from now, but some definite action should be taken where it is going to be rapidly. If you will work together with your local government here, I think the local government could probably help to conceive plans whereby you could get this traffic into an outlying area.

I know what is going through your minds. You are probably stating to yourselves, well there are other airports that have the same condition as Los Angeles. That is true. We will grant you that, but do they have the same geographic outlay as Los Angeles has? How many of these other airports have the surrounding area available to land these jets? Where we are fortunate enough to have this area. Those are the things I think you want to take into consideration; not because the other fellow has it or has that problem, Los Angeles can put up with it. That is not true. We have a problem here that can be solved very easily in comparison to some of the other outlying airports around the country and I think you will agree with me on that.

I am quite familiar with Idlewild. Where can you go to work and land in any outlying area like you can here in Los Angeles or in California?

Now, I concur in every way, and I am simply making those suggestions as things might be worked out by the committee, and we hope and sincerely trust you can give us some relief in the very near future.

Mr. MOULDER. Any questions, Mr. Brock?

Mr. BROCK. No questions, Mr. Chairman.

Mr. MOULDER. Mr. Derounian?

Mr. DEROUNIAN. No questions.

Mr. MOULDER. Summarizing your statement, is that you recommend the construction of another airport or construction of landing strips for the exclusive use of jets in another location?

Mr. DEROSE. I believe that that would be the solution to the entire problem.

Mr. MOULDER. I agree with you.

Mr. DEROSE. Here when we have a fog condition it is no problem to land at the Ontario Airport, and they land out there and the passengers are brought into Los Angeles. Now, the argument that might be an argument to the point, well, it is quite a way from Palmdale or Lancaster to bring the passengers into Los Angeles. If you are going to have the rapid transit system you could go to work and you could cut your problem in short by having a landing or a transportation terminal, one in Beverly Hills and another perhaps a little further out or in the heart of Los Angeles. We have a helicopter development today. The helicopters could take them right from the landing port and bring them right to the heart of Los Angeles, which could be done perhaps as rapidly as is being done now.

Another thing I forgot to bring out is the elimination of all the cars that are going to be taken off the road by doing this. People going back and forth to the airport to bring these passengers. The busses that are constantly throwing out these fumes. That is all going to be done away with, and that will probably help some of our smog situation here in California.

I think there are many angles that could be taken into consideration.

Mr. MOULDER. We certainly do thank you. You made a fine statement. We appreciate it.

The committee will recess for a period of 5 minutes.

(Short recess.)

Mr. DEROUNIAN (presiding). The hearing will come to order, and we will now hear Mr. Roger Duitzman, Inglewood Chamber of Commerce, if he is here.

Mr. Duitzman?

(No response.)

Mr. DEROUNIAN. Mr. Carl De Joseph, Century Heights, Los Angeles Citizen Group.

STATEMENT OF CARL De JOSEPH, CENTURY HEIGHTS, LOS ANGELES CITIZEN GROUP

Mr. DE JOSEPH. Gentlemen of the committee, I wasn't expecting to be called so early, but I think we can go from here.

Although we know that you are aware of our problem, it is a known fact that too few people have actually experienced the problem as it really is. With respect to easterly takeoff, the airlines have displayed extremely poor face with the airport neighbors, and alarming disregard for the safety of the thousands of people over whom a takeoff before achieving a safe altitude and speed, and a complete ruthlessness in their pursuit of concessions contrary to existing operational procedures. Whereas the propeller driven aircraft took off to the west unless an adverse wind condition existed, the jet pilots feel free to take off to the east any time the tail wind is not too grave for available runway length. Thus, a procedure not considered safe for

a proven airplane with many years of service is blindly adapted for the new unproven jets to save the few additional gallons of fuel they use for a westerly takeoff. The fact has not been brought out that the construction of this airport gives it a slope to the east, and it is a known fact that can be verified that at one time I'm calling the tower regarding an easterly takeoff we also called the weather bureau and found an answer that there was no wind condition; the wind condition was nil. The pilot took off to the east basically because he could carry 5,000 pounds more of payload. This is a continual performance.

As another example of their ruthlessness, their agreement to suspend nightly takeoffs to the east was immediately rescinded when the FAA did not specifically forbid such procedures. Although the FAA would not normally regulate in such local situations, the airlines presumed that any procedure is not specifically forbidden were automatically allowed and blessed by the national agency despite agreements made at the local level. We believe that the FAA regulations are intended to supplement, not replace, and local regulations and we are also certain that the airlines purposely took their stand to further force their will on the local populace.

The tower at the present time is not complying with the regulations as set down. I don't have the leaflet here, but I saw a leaflet that says that safety of the passengers comes first, and I think also the people on the ground; noise abatement second; expedition of traffic, third. The tower is not complying with these conditions and controlled regulations. It is stipulated that they must hold straight until an altitude of 1,500 feet is reached. Instead they are turning before this point to expedite the oncoming traffic from the east. Expediting of traffic should be third after noise abatement.

An inquiry was made to the tower and the tower's answer was that they could not possibly hold that aircraft in a line until it reached 1,500 feet on altitude without turning off because of the incoming traffic. The airlines favor progress. They have continually rebuffed any questions or statements that we have made that this is a matter of progress. They seem to favor only a special type of progress. They want faster, bigger, moneymaking progress. All other types of progress are wrong.

Let me quote from the February 29, 1960, issue of Aviation Week magazine. TWA plans to cut 15 to 20 minutes off its New York to Los Angeles time by using the 707–331. Since the 331 carries more fuel it can afford to trade some opearting efficiency for its speed advantage. It seems most unfortunate that TWA is not more inclined to trade some operating efficiency for a quieter operation. This, in spite of the prior directive from the FAA dated January 8, 1960. I quote:

> The FAA said today many jet airliners are being flown faster than is safe.

It ordered its regional inspectors to crack down. Ward B. Masden, Chief of the FAA Operations Division, said the airliners were built to fly within certain tolerances. If they exceed them, "we don't know what's going to happen." He ordered inspectors to make sure pilots are familiar with operating speeds and their significance. The FAA said information gathered from flight recorders on jet planes showed safe speeds being exceeded—

> in a large percentage of flights, with a frequency which is alarming because of the hazardous implications involved in exceeding design loads.

Gentlemen, the speeds were actually reduced on the Electra jets after several disasters. Yet the FAA and airlines were aware of the effects of excessive speeds prior to this. Must we continually wait for disaster before corrective measures are instituted? I don't think so. I am sure you agree.

With the Doolittle report available to all airport planners, city councils and State and Federal agencies, they knew what was coming. They were told through numerous media the problems to be faced if they did not properly plan for the future. Yet they proceeded to spend State and local and Federal moneys to expand existing facilities which would not and could not be revamped to handle the predicted air traffic. In addition, the extent and nature of the activities around the expanded airports constitute an intolerable nuisance to the airport community.

With all this knowledge aforehand, the airport authorities and airlines now have the colossal nerve to tell us we who were unaware were foolish to buy under the flight path. What excuse does the airport commission and airlines propose to invent for the people who will be under the flight path to the new north runways being built at Los Angeles Airport? They certainly can't pull that old one about being there first. No doubt they will claim that everyone who complains is trying to stop progress—and our definition of progress is not the same as theirs—when, in fact, the airlines and airport authorities ignore published scientific data when trying to win public acceptance of the jet noise nuisance.

Mr. Finday of Boeing Aircraft was quoted in Aviation Week of November 9, 1959, as saying:

> **The problem may decrease with additional jet schedules because airport neighbors will become more used to the flights and consider them normal, whereas now the relatively few jet operations are conspicuous because they are "whistles in the dark."**

This is in direct conflict with published data by leading authorities on noise nuisance, including Bolt, Beranak, and Newman. In a Bolt, Bernanak, and Newman paper presented before the American Society of Mechanical Engineers in March 1959, it was stated that:

> **We know from neighborhood studies that it is generally not the isolated, exceptionally noisy airplane that sets the level of annoyance in the community, but rather sustained activity over a period of time.**

And:

> **The conclusion stated above is consistent with testimony given in the Newark trial in 1957. Most people gave as their reason for annoyance that their sleep was disturbed or that they experienced interference with the telephone, speech, radio, or the audio of TV—**

or general interference with recovery from illness.

There are solutions which are realistic, and before I get to that I would like to say that the cheapest solution to this whole problem—and this in a humorous vein, and I hope you will bear with me—is if we could pay the room and board of you three gentlemen from Congress here and therefore stop the noise, because today has been a pleasure in comparison to the normal run of events. [Applause].

I don't know if a check of the airport will bear us out, but I found in observation this morning that the propeller-driven planes were

using the south side and the jets were using the north side of the runway.

One solution that was mentioned was to take off and land from the west at all times. Now, this has been thrown back in our teeth by the FAA and by the airlines and by the airport as being entirely unreasonable, but it doesn't explain away the fact why they can take them off to the east and land them from the east at the same time and call that a safe procedure. In my estimation, and I think in the estimation of the people in the community, that this is not any less feasible, taking off to the east and landing from the east, than it is to take off to the west and land from the west.

One of the other solutions has to do with future development in expansion of the commercial aircraft industry, and it will save money and has been known for years. Solutions were presented in the Doolittle report to President Truman in 1952. The airlines, local airport authorities, the FAA and State and Federal Governments, have ignored these recommendations.

Superaircraft such as the Boeing 707 and Douglas DC–8 should be moved to more remote areas such as Palmdale, Calif., and I will go a little further in agreeing with Supervisor Hahn and Mr. DeRose who preceded me here, and I will go in direct contradiction to the Congressman from New York, and say that I disagree with his statement that the airport will not be moved. I would like to know why the airport will not be removed or why such a statement could be made when it is factual that at the present time the local or State government is looking for a site for a college, which would be a wonderful thing where the present airport is.

Mr. DEROUNIAN. May I just tell you why I don't think the site will be moved? That is because the city of Los Angeles won't want it to be moved because you are getting business here. Now, that is a practical observation. It doesn't mean the way I feel, because I know this problem and I know you didn't mean any inference about what I said about it, so I just wanted to make that clear for the record.

Mr. DE JOSEPH. That is right; and I do say, since you mention the city of Los Angeles, I wasn't going to, but you did say we were getting business from it, and I feel, Mr. Congressman, that there is one word left out, and that is that we are getting "the" business from the city of Los Angeles.

Mr. DEROUNIAN. That is your problem. I am a New Yorker and I don't mix up in other States politics. I will tell you that. I have got enough problems of my own.

Mr. DE JOSEPH. Palmdale has been recommended. In Palmdale there is plenty of room for the required facilities, and it is early enough so that zoning could restrict the encroachment of residential development into the residential area. This move could be made now without any undue penalty. The airlines like to argue that Palmdale is too far. And I ask: It is too far from what? Certainly it must be farther from concentrated population areas, farther away than Los Angeles International Airport, or it wouldn't do us any good. Well, I don't know. It looks like I'm about at the end of my rope.

I would like to mention one thing further in connection with the Bolt, Beranak, and Newman sound survey. I have it here some place.

In their sound survey, and they made the survey on September 3, 1956, in Aviation Week magazine, it was reported in 1956, and Mr. Beranak said:

> It was estimated by Boeing in the corrected version of their paper given this year to the Institute of Aeronautical Sciences that the 707, with four engines as takeoff power, will produce a maximum overall sound pressure level of 130 decibels at 900 feet.

Beranak added parenthetically that independent studies made by his company of the Pratt & Whitney aircraft J–57 substantiate this figure. Continuing the quote:

> Assuming an active airport and present-day tolerance to airport noise this level is about 20 decibels greater than currently permissible.

Noise made by the DC–6 series airplane appears to have been accepted by the airlines as the yardstick against which the jets—707, DC–8, and Golden Arrow—will be measured and which they will not be allowed to exceed.

Let me point out to this group that a difference of 20 decibels means the sound pressure is 10 times as great and sound intensity is 100 times as great. In other words, it requires 100 times as much power to create an additional 20 decibels of noise.

If I might impress you with a few figures—60 decibels corresponds roughly to the sound level of conversational speech. A noise level of 150 decibels is 1 billion times as intense and the pressure is over 30,000 times as great as at 60 decibels.

Jet noise problems are becoming a major issue in Germany. Hamburg has authorized Pan American to begin Boeing 707 flights to and from the city, but has placed strict gross takeoff restrictions on night flights. Other German cities are offering stiff resistance to jet flights under any operating conditions or restrictions.

The latest information we have indicated the following jet curfews: London, 11 p.m. to 7 a.m.; Paris, 10 p.m. to 7 a.m.; Dusseldorf, 10 p.m. to 6 a.m.; Hamburg, 10 p.m. to 6 a.m.; Newark, N.J., barred completely. It was the crashes at Newark, I understand, which sparked President Truman's commission in the General Doolittle report.

I would like to further go on record as recommendation and would ask you gentlemen of Congress to halt any further increase of jet operations at the International Airport until such time as a solution can be found.

Thank you.

Mr. MOULDER. Mr. Brock.

Mr. BROCK. Mr. De Joseph, you spoke at great length regarding decibels of sound. What would be your conjecture on the decibles of sound in the glide path of the jets passing over this school?

Mr. DE JOSEPH. I would have that information. I think it is available. As far out as Crenshaw Boulevard, we have that on a survey by Bolt, Beranak, and Newman. If you would like it, sir, it is available for your perusal.

Mr. BROCK. I would be happy to have that.

Mr. MOULDER. You mean you want to submit it for the record?

Mr. DE JOSEPH. This is a report of a private party. I don't know if he would like—Mr. Hall—if he would like to submit it, sir, I would have no objections. It is available.

Mr. MOULDER. You could submit it for the record later.

Mr. BROCK. One other question, Mr. De Joseph: How many easterly flights do you have a day here?

Mr. DE JOSEPH. Congressman, that information is available from the tower at the airport. We have it mailed to us now daily. I personally am not home every day to monitor them, but we do have some facts and figures where, over a 3-day period, we monitored 94 easterly takeoffs. I keep quoting these people because they work with me and these were monitored by these people. The average is small, but the intensity of the takeoff is such that any one creates a good deal of physical and mental intolerance.

Mr. BROCK. I don't know what the number of easterly flights are here. Would you say it is 10, 5, or 15 percent of the flights daily?

Mr. DE JOSEPH. I don't think I could be safe in stating an actual percentage figure. I would say between 5 and 10 percent at the most.

Mr. BROCK. Thank you, Mr. De Joseph.

Mr. MOULDER. Mr. Derounian?

Mr. DEROUNIAN. No questions.

Mr. MOULDER. Thank you very much.

Mr. DE JOSEPH. Thank you, gentlemen.

Mr. MOULDER. Yvette Kovary?

STATEMENT OF YVETTE KOVARY, CHAIRMAN, CITIZENS' COMMITTEE OF PLAYA DEL REY

Mrs. KOVARY. Congressman Moulder, Congressman Derounian, and Congressman Brock——

Mr. MOULDER. Will you state your name for the record?

Mrs. KOVARY. My name is Yvette H. Kovary. I am the chairman of the Citizens' Committee of Playa del Rey.

Gentlemen, I hold commercial multiengine flight instructor's ratings, and as I said, I am chairman of the citizens' committee in Playa del Ray.

Basically, Los Angeles International Airport is badly located. Heavily loaded jet transports must traverse the entire length of the densely populated city of Los Angeles and the county of Los Angeles in order to land at almost the seacoast. This situation could be corrected by the use of Ontario Airport for the handling of the jet transports.

This is a picture [indicating] that I will pass to you later of Los Angeles International Airport. The two main runways at present, the city of El Segundo, Imperial Highway which divided the city of Los Angeles from El Segundo, and the beach at Playa del Rey, the town of Playa del Rey, which extends out to here [indicating], West Westchester, and Westchester, which you can see is a highly concentrated area; and this is the new north runway about which Mr. De Joseph spoke. There is to be a further runway there [indicating], according to the airport plans.

Mr. DEROUNIAN. Is that the two runways on the right proceeding east from the top of the photograph?

Mrs. KOVARY. They come from the east to the west.

Mr. MOULDER. May we see that picture?

Mrs. KOVARY. Yes, certainly.

At the risk of boring you gentlemen, I would like to refer to the Doolittle report again which we first discovered a year ago to aid in our fight against a rezoning problem between Playa del Rey and the airport, and we began to go through it and we found many instances that we felt would help us in our rezoning battle.

Here I would like to quote:

> It is possible the future will call for a system of airports for a metropolitan area with separate facilities for certain types of air traffic. This involves regional and city planning and particularly questions of interconnecting highway and air services and the integration of the air and ground traffic.

That, from General Doolittle, in 1952.

Ontario Airport has expressed a desire to have these aircraft—the jets—based there. At present, it is used as an alternate airport when weather does not permit landings at Los Angeles International Airport. There are customs facilities and everything required at an international airport.

The approach from the east toward Ontario is over thinly populated farm country and, with proper planning, it could be kept that way.

Back to General Doolittle's report, page 7:

> That larger areas—the Commission has two suggestions to make in this connection, that larger areas beyond such extensions be zoned by proper authority not only to prevent the erection of obstructions that might be harmful to aircraft but also to control the erection of public and residence buildings as a protection from nuisance and hazard to people on the ground.

And General Doolittle foresaw that much, that someone can control this residence building near airports.

Also, on takeoff from Ontario, the planes would be climbing out over land instead of over water, and, in case of an emergency, the chance of the majority of the passengers surviving is very much greater than if the plane had to be ditched immediately after takeoff with a full load of fuel. I do not feel I need to describe how rapidly such an aircraft would sink in water.

Access to Ontario from most parts of Los Angeles, Los Angeles City and surrounding counties, is far easier than a similar trip to Los Angeles Airport. Ontario is presently served from Los Angeles by the existing San Bernardino Freeway, and it is closely approached by another existing freeway, the Riverside Freeway. The latter gives access to Ontario Airport from the heavily populated areas of Long Beach, Santa Ana, Riverside, Compton, South Gate, and many others. Included in that would be the cities of San Bernardino and Riverside, the desert communities, the Orange County to the south, and even the San Joaquin Valley areas near Bakersfield.

On the other hand, the traffic situation around Los Angeles Airport is chaotic, and there are no plans for alleviating it.

I have an article that I will put into the record, if you will permit me, and one other small item:

> When the necessity for superairports arises, and it is unlikely that more than half a dozen will be needed, it is obvious that they will have to be located at a considerable distance from metropolitan centers.

That is from the Doolittle report.

According to Dr. Joseph Haring, in his report on regional transport problems, and I am quoting from an article in the Mirror-News of April 1 of this year:

> In 5 years, it will be impossible to get to the airport because of the traffic unless drastic steps are taken to improve the situation.

I can testify that not only is nothing being done by the city of Los Angeles to alleviate the situation—I, as a Los Angeles City taxpayer—but the Los Angeles Planning Commission is busily granting zoning for high density occupation of property nearly abutting the airport.

On April 14, 1960, in spite of protests from residents of the area with regard to the prospect of frightening traffic jams, the planning commission voted to increase over 14 acres almost abutting on the airport property from R–1 to R–4. The development which will be carried on there will result in seven to eight story apartment houses and hotels with no additional streets to carry the traffic load.

It would appear that the Federal Government should cease pouring the taxpayers' money into an airport that soon will be impossible for travelers to reach because of the traffic conditions.

We have heard a good deal about noise suppressors for the jet aircraft, but officials are strangely silent about the ghastly racket made by the revving up of piston engines. For many years to come, piston-type aircraft will be used. These planes are revved up around the clock at International Airport as they are given their daily required preflight inspections, and the residents of Westchester on the north, El Segundo on the south, and Playa del Rey are disturbed day and night there by this noise.

Then we have the noise on takeoff which Congressman Derounian asked about, and it is terrible; it is deafening. The FAA rules say that the pilot can choose his own runway, and there is the longer one being built. However, should the pilot or his airline suggest that he use one closer to the passenger terminal and save the perhaps $30 that it might cost to taxi the plane for a mile, he can do that.

I have flown, and I have flown in two transcontinental races, one of which I was sponsored in by the Inglewood Chamber of Commerce, and another one by my fellow Coast Guard reservists, and I have been into many airports and also the tower told me which runway to use. I have flown with many military pilots during my 3 years in the Coast Guard during the war, and they were always told which runway to use.

Why should the FAA not be allowed to set up a rule to allow the tower to direct the airlines, direct the pilots which runway to use? When Playa del Rey was developed, International Airport did not exist, but little by little the airport has pushed closer to the boundaries of this very lovely beach settlement.

Recently, that was last year, April, the airport wanted to rezone a portion that you can see on your picture there, from the R–1 which it presently has held and which it has held for the past 14 years to M–2, and put maintenance in that section. That would be right behind a Playa del Rey area and adjacent to the present M–2—M–3 of the airport. Instead of leaving that portion as a buffer zone, the talk is now in terms of taking over the entire area of Playa del Rey, including the precious beach frontage.

First, I would like to show you some of the houses in Playa del Rey, when I speak of a lovely residential area.

(Mrs. Kovary shows the committee several pictures.)

Mrs. KOVARY. And I have here some pictures taken in a helicopter that show the area of Playa del Rey looking southward toward El Segundo, and showing the beach. [Indicating.]

This is the city of El Segundo and the airport and Playa del Rey. This is looking north from airport property toward Playa del Rey, and this one is looking south toward El Segundo.

Bit by bit, heavy industry usurped the beach frontage which should be preserved for the recreation purposes of generations to come. South of Playa del Rey, we have the Hyperion Treatment Plant, which you can see on the large picture in the lower right. Then there is the Scattergood Steam Electric Generating Plant. Beyond that, the Standard Oil Refinery, and beyond that the Edison Plant. The city of El Segundo, a beach city of over 17,000 people, does not have one foot of beach to which the general public has access.

I come before you, speaking for the residents of Westchester, El Segundo, and Playa del Rey, and it is our hope that this committee will bring relief to us from the intolerable conditions presently prevailing at the airport. I would like to impress upon you the fact that our city officials in all departments having to do with the operation of the airport have completely ignored the needs of the rank and file citizens in favor of the airline companies and other special interests.

Mr. MOULDER. Thank you. Any questions?

Mr. BROCK. No. Thank you, Mrs. Kovary.

Mr. MOULDER. Mr. Derounian?

Mr. DEROUNIAN. Mrs. Kovary, I think you mentioned at lunch time that on these two east-west runways more often than not the plane would come over the populated area of Playa del Rey rather than going through this gap. Now how often is that done and what are the prevailing wind conditions at the time that is done?

Mrs. KOVARY. The prevailing wind conditions are from the west. Occasionally there is a wind from the south, the east, or the north, but basically the wind comes from the ocean. I have a windmill on my front lawn. I have a very good wind sock in the Hyperion smokestack which always has smoke coming out, and I can see the drift perfectly. The FAA and other officials have tried to say that these planes are drifted by the wind, but if they were drifted by the wind, they would be drifted toward the south because the wind is slightly from the northwest. They would be drifted southward toward El Segundo. I can stand in my backyard and watch these planes turn slightly toward their right as they take off and come over the populated area there. This is in the daytime; not just at night when they might say they can't see; and then when they get over the ocean they make a left turn. I have never been able to find out why.

At one time I called TWA and spoke to their chief pilot because they were the worst offenders. This is about 3 or 4 years ago when we were all taking numbers diligently. Nothing was ever done about it. And I called the chief pilot and he said, "Our pilots don't do that kind of country flying." Yet all my neighbors would testify to the fact that they do. They bear right and they turn left.

Mr. DEROUNIAN. Is that just one airline or all of them?

Mrs. KOVARY. Mainly all of them, but basically one or two. Lately Mr. Fox, the general manager of the airport, has monitoring done. In fact, the monitoring inspectors will park right outside of my house and jot down the direction of the plane, the number, the airlines and all of that information. And about 2 or 3 weeks ago I stopped and asked one of the men just how well they were doing. It seemed that they were doing very well that day, and he said, "Oh, yes, they are." And I said, "It is almost as though they knew about it. Knew that you were here monitoring." He said, "Why, they do."

He said they are told at the station. Well, I don't believe that Mr. Fox himself goes down there and tells each pilot, "My man is out there." But somebody does inform these pilots that they are being monitored that day, and they stay very nicely over the sand dunes.

Another incident, another series of incidents, concerns the jets when they take off directly over us, and we are told that the pilot, in the nose-high attitude, cannot see the ground and he cannot see the houses and landmarks. Well, this may be true, but on descent when some of these planes come in from the north and land to the east they do not come from out in the ocean and line up with the runway. They come directly down Trask Avenue, which is the closest street to the airport; turn at the very end of the residential area, which happens to be right over my house; and head into the runway. There is no excuse for that in broad daylight. There is no excuse for that at night. They can see. Those men pass very strict physicals. There is nothing wrong with their eyesight.

Mr. DEROUNIAN. Thank you very much.

Mr. MOULDER. Thank you, Mrs. Kovary.

Mr. J. J. Sailors?

Mr. BAKER. Honorable committee, I am Wilburn Baker of El Segundo, for Mr. Sailors.

STATEMENT OF WILBURN BAKER

Mr. BAKER. Since you have had so much repetition I would like to present two resolutions from the city of El Segundo.

Mr. MOULDER. This is for the record?

Mr. BAKER. Yes. And to keep from being repetitious, I would like to say that I concur with the lady who was just here on most of her remarks. There is one problem that has not been brought before you today, and that is the problem that I understand you have no control over, and that is these maintenance facilities on the airport. Continental, American, and TWA have maintenance facilities just to the north of us, and their runup, are all night long, and they keep our citizens awake. We have had numerous complaints ever since they have been in existence. However, they have tried to eliminate some of their noises. Wouldn't it be a good idea if there was Federal control on that instead of just a local control? That is about all that I have other than to concur with everything that has been said here. I know your time is short, and I would like to congratulate you on the way you have listened to everyone. It has been very good.

Mr. MOULDER. Thank you very much, Mr. Baker.

Dr. Joseph Applegate?

(No response.)

Mr. MOULDER. Mr. Duitzman?

(No response.)

Mr. MOULDER. Then the committee will hear Mr. Francis Fox, manager of the Los Angeles International Airport.

Let's have order in the hearing room, and may I caution those who are here you have been so cooperative with us in the conduct of the hearings and listening to the witnesses. Your attention is appreciated and your behavior is sincerely appreciated. I hope there will be no demonstrations or actions which will interfere with the conduct of the hearings or the testimony and the statement made by the witness. Thank you very much.

You may proceed, Mr. Fox.

STATEMENT OF FRANCIS T. FOX, GENERAL MANAGER, LOS ANGELES DEPARTMENT OF AIRPORTS, LOS ANGELES, CALIF.

Mr. Fox. Mr. Chairman, members of the congressional committee, first of all I want to express our thanks to you for your coming this great distance to concern yourselves with this extremely serious problem and for your patience in listening to all sides of it. I would also like to congratulate Dr. Berke for the very fair arrangement that he has made and representing Congressman King in setting up this meeting.

My name is Francis T. Fox, and I am general manager of the Los Angeles Department of Airports, having been appointed to the position by the board of airport commissioners on May 1, 1959.

I am responsible for the general operation and development of both the Los Angeles International Airport and the Los Angeles-owned Van Nuys Airport, which is located in the community of Van Nuys. Both airports are within the physical boundaries of the city of Los Angeles.

I would like to trace for you very briefly the development of Los Angeles International Airport and outline its economic importance to southern California and the areas adjacent to the terminal proper; and comment briefly on the present state of the airport's expansion. This is important background information necessary for a proper understanding of the aircraft noise problem and our attempt to alleviate it.

The airport was officially opened in 1928 as Mines Field. It then then consisted of a lone 2,000-foot oil strip and two small hangers.

Following this humble start, the development of Mines Field was swift and at times spectacular. The airport was the scene of many national air races; the landing of the *Graf Zeppelin* on its flight from Japan in 1929; and it was the magnate that attracted the two aircraft companies to the area, and they are; namely, Douglas Aircraft and North American Aviation.

Even in its early stages, the airport played a dominant role in the economic stability of the embryo villages that dotted the surrounding landscape.

In 1937, the city of Los Angeles acquired title to Mines Field and in 1941 a municipal ordinance displaced the Mines Field title in favor of Los Angeles Airport.

National defense activity generated by World War II, the influx of population and industry to southern California, and the orderly growth of aerial transportation combined to spur the development and expansion of Los Angeles Airport and in 1943 it developed a master plan which is being followed in its basic concept today.

In 1946, the major air carriers transferred from Lockheed Air Terminal to Los Angeles.

Currently, there are 6 foreign carriers and 13 domestic airlines operating in and out of Los Angeles International Airport. We average about 1,000 flight operations every day. Several additional foreign-flag carriers will soon be conducting operations at the airport in line with the bilateral agreements between the United States and the foreign countries involved.

The growth and expansion of International Airport since the end of World War II has been synonymous with the industrial and residential development of the areas surrounding the airport itself.

Property on the perimeter of the airport that once lay idle and useless soon became extremely valuable for industrial and residential construction.

History proves that an active, thriving airport attracts new business in many and varied forms. Residential development is a natural consequence of industrial development. The dollars that an airport attracts benefit the communities immediately adjacent to the airport itself.

At Los Angeles International Airport, for example, there are more than 75 major leasehold tenants, many of which are engaged in vital defense activities. They employ between 25,000 and 30,000 persons and these companies have a weekly payroll of more than $4 million. Additionally, these firms buy $75 million and upward annually in the procurement of goods and services in the Los Angeles area.

Most of the employees of these tenants of ours reside within a 15-mile radius of the airport itself. They spend a large percentage of their dollars with the merchants, the business firms, and the professional men located in the general airport vicinity.

Another example of the economic importance of Los Angeles International Airport can be found in the files of the nearby Inglewood Chamber of Commerce. That organization has on record that there are some 285 industries, large and medium and small, that have a combined payroll exceeding $300 million annually, and these industries are located within a 1-mile radius of the airport.

Now, under terms of a $59,700,000 bond issue that was approved by the Los Angeles voters by a majority of 86 percent in 1956, the airport, which now embraces over 3,000 acres, is being expanded and developed to meet the exacting requirements of the jet age. It would cost between $200 and $300 million to replace this airport facility elsewhere.

I would like to stress the important fact, too, that this airport development program and the operation of the Los Angeles International Airport and our whole department of airports is not costing the taxpayers any money. We are developing it out of revenues. A sort of a pay-as-you-go process. We do have a $12 million grant in aid that we have received since the Federal aid program developed in the Federal Government so that the Federal Government today itself

has a stake of some $12 million in the future growth and life of this airport.

When our new terminal is completed in 1960, it will be one of the finest airport terminals in the entire world. It is a fitting monument to the unprecedented and spectacular growth of southern California. At present, our airport ranks third as the busiest in the world. We stand behind Chicago's Midway Airport and the National Airport in Washington, D.C. In 1947, the first year that the airlines started scheduled operations at International Airport, we carried some 1,200,000 passengers.

In the year just finished, 1959, we carried just under 6 million passengers, which is equivalent to the entire population of the county of Los Angeles. We fully anticipate, and our studies justify, that the development of the airport is such that by 1970 there will be some 18 to 23 million passengers using this airport which is an economic lifeline and a major gateway to the Los Angeles area.

It is the objective of the Department of Airports of Los Angeles and its governing body, the board of airport commissioners, to provide safe facilities and services for the traveling public and the air carriers who use our terminal.

The department of airports recognizes the serious problem presented by jet transport aircraft noise. We caused to be developed and to come into being the Los Angeles Sound Abatement Coordinating Committee. Mr. Don Belding, who was president of the board of airport commissioners, is chairman of that committee. He will outline for you today the positive steps that have been taken in our attempts to alleviate the noise problem. We, as a department, are cooperating with this commitee. Aircraft noise can never be eliminated from an airport, but it can be alleviated. Guided by the principle of achieving "the greatest good for the greatest number," we are doing everything reasonably and humanly possible to maintain International Airport as a good neighbor in this great community.

I want to thank you for the opportunity for being here, and I will be happy to answer questions.

Mr. MOULDER. Thank you, Mr. Fox.

Mr. Brock?

Mr. BROCK. Yes, Mr. Chairman.

Mr. Fox, were you present and heard the lady witness previous to the last witness?

Mr. FOX. Yes, sir.

Mr. BROCK. She stated in effect that 7- to 8-story apartment buildings were being contemplated adjacent to the airport.

Do you have anything to comment on that remark of hers?

Mr. FOX. Yes, sir, I do. Very unfortunately the zoning change was made in her own community of Playa del Rey permitting multistory construction in an area that is somewhat on a line with one of our new runways. This is another element that our department as such has no control over. We have no doubt that these people will build apartments there and then when traffic becomes necessary to take off from the runway, we will hear substantial complaints.

Mr. BROCK. Did you remonstrate to the developers and point out the fact that they were near an airport and were subject to the noises of aircraft?

Mr. Fox. Yes, sir. In this one instance we are very happy to be on the same side as Mrs. Kovary, and we didn't want this construction to take place.

Mr. BROCK. Now, if we had, Mr. Fox, a 3½-percent glide slope rather than a 2.75-percent glide slope, would this offer relief to the people?

Mr. Fox. An increased glide slope would bring measurable help, we are sure. There are aeronautical reasons, though, that the people in the industry tell us that this isn't practical and it isn't safe.

Mr. BROCK. I think that is all I have, Mr. Chairman, at this time.

Mr. MOULDER. Mr. Derounian?

Mr. DEROUNIAN. Mr. Fox, when you talked with the developer, did you point out to the developer and the municipal body that this building would be in the flight or line of flight of your new runway?

Mr. Fox. Yes, sir. In our work with the planning commission in the rezoning problem that we had relating to the acreage east of Playa del Rey, which property, incidentally, we own, happens to be zoned residential, but we have informed the planning commission of our runway development and expansion program.

Mr. DEROUNIAN. One of the superintendents mentioned before that a 10-pound piece of ice fell in the playground or in the schoolyard, and that he wrote you a letter and never got an answer.

Mr. Fox. Yes, sir. We received a letter and we are extremely puzzled as to where the ice came from and we are still researching it. We have gone to the carriers. Our staff is exploring the schedules of the day trying to track down what conceivable source a 10-pound hunk of ice would come from, and we haven't had any success and I have hestitated to answer the letter until we could get the right answer for him.

Mr. DEROUNIAN. Now, about the planes taking off on east runway, where Mrs. Kovary stated that instead of going through the gap where there is no population they veer over to the right over her house and other homes where there is no apparent reason for them to do so.

Do you agree with her statement of fact as to these things happening almost continuously?

Mr. Fox. I have discussed this many times with Mrs. Kovary. We have a basic disagreement as to how many times it has happened. I have taken our security officers and put them up on a monitoring basis. She referred to this. I absolutely deny that there has been any knowledge of the airplanes or the airlines company when I put my monitors up there, because I don't know when they are going half the time myself. It is a matter of scheduling by our security officers. I have asked merely to get a reading of all the planes who deviate from the straight-out course.

Mr. DEROUNIAN. Now, if you find a plane who deviates from the course, what do you do?

Mr. Fox. We call the airline in. We write a letter for the record. We ask that the pilot be called on the carpet to explain why he deviated from the prescribed path, because we have established a field regulation that the departures should be perfectly straight, and no turns before the end of the shoreline, which should take them away from going over Mrs. Kovary's house.

Mr. DEROUNIAN. Apart from telling the airlines, do you have the right to deny them landing privileges for a certain period of time if they violate these regulations?

Mr. Fox. I feel that we do.

Mr. DEROUNIAN. Or a penalty?

Mr. Fox. Well, as our agreement is a contractual obligation with all the carriers, they, in turn, agree to abide by our regulations. However, there is an area of disagreement where FAA takes over and the Department of Airports has jurisdiction. We have felt that we have the authority, but it has been recently clarified within the year that when a plane is in the air and off the ground the FAA has the jurisdiction so in this case, the violations now, we not only write the carrier but we inform FAA. And as a matter of policy FAA has found it difficult to file a violation which is a very serious charge against a pilot for deviating what amounts to 300 or 400 feet off his course.

Mr. DEROUNIAN. Mr. Fox, we have had this problem in New York Airport, and I have had discussions with Mr. Wiley, whom you know, and I pointed out to him at the hearing at which Mr. Brock was present last Labor Day, and I said:

You'd be surprised how effective your regulations would be if you rap these airlines on the knuckles and prevented them from landing for a couple of days—

and they would darn well make sure their pilots went straight.

Mr. DEROUNIAN. I don't mention that because it happens to agree with the people here. I sincerely believe that, and I think that the airport people have got to get up a little courage and rap these companies on the knuckles if they are wrong, and just as correctly they should stick up for them when they are right. But they are going to ease in and out if nobody's watching them and nobody's doing anything about it except calling it to their attention. I am serious; although I am a friend of aviation, and on the Aviation Subcommittee and for progress and private enterprise, nevertheless these residents deserve a break where it is absolutely possible that you can do something about it, and I don't think that all has been done that could have been done in this enforcement process.

Mr. MOULDER. Any comment, Mr. Fox?

Mr. Fox. No, sir. Except one item: I believe it was Mr. De Joseph that mentioned that our airplanes are landing on different runways today. I checked immediately after lunch to find if there was any deviation from a normal traffic pattern at all. There is none whatsoever. We have only one active runway today. The planes have been using the——

Mr. MOULDER. I wish to caution the people who are present here at the hearing that we cannot tolerate demonstrations or any interruption during the course of the testimony of a witness. Of course, we sympathize with your feelings, your emotions, and your deep concern. That is the reason we are here, to try to help you solve this problem.

We respectfully again ask you to not make any demonstrations or comments during the course of the hearing.

Mr. Fox. I did check with the control tower and with our operations people, and the planes up until an hour ago were proceeding on instrument flight rules, which meant they were coming in on the glide path under instrument control, and the normal schedules are in effect today.

It certainly is much quieter in here than it is outdoors, I am sure, and I think, as the principal of the school or superintendent of schools mentioned, that may be due to the acoustics in here. But to my knowledge flight schedules are the same as they are every day.

Mr. MOULDER. Mr. Brock?

Mr. BROCK. Mr. Fox, I have asked several witnesses on the number of flights or the percentage of flights that proceed from the east, going west. Could you, for the record, for a period of 1 month, give me the percentages of flights? You may not have that knowledge, I realize, but could you furnish it for the record with the permission of the committee?

Mr. FOX. Sir, we could; we kept a continuing record of all easterly takeoffs; 96 percent of all our traffic, both piston and jet, go to the west because of the prevailing wind conditions. It leaves—and that is on an annual basis; it applies almost any given month except some time in the spring when you have the storms hit in as happened within the last couple of months, and you get heavy easterly winds. The easterly takeoff thing is one that we are particularly sensitive about because the Department of Airports took a very strong stand on it, and we prohibited easterly takeoffs between certain hours of the night. We wanted to prohibit easterly takeoffs all the time, but in the meetings with our Sound Abatement Committee and with the people who are on that—Mr. Belding will explain the details of what we do and what we have done there later. It was pointed out that air commerce would be interfered with, and when the FAA regulations superseded this regulation that was effective April 1, and superseded all our local regulations, we were surprised to find out that the easterly restriction was eliminated from it.

We feel that as a department of the city of Los Angeles we have tried within human and reasonable limits to protect the interests of our neighbors here.

Mr. BROCK. Thank you, Mr. Chairman.

Mr. MOULDER. Mrs. Kovary testified that the pilots of the commercial airlines operating the airplanes there have to make their own selection and decisions as to which runway they would use to—don't you have control over that?

Mr. FOX. That is basically a matter for the FAA control tower to give an answer on. Pilots, in my experience—and flying out of my own airport, and I pilot my own airplane occasionally—can indicate a preference for either 25-left which is the left-hand long runway, or 25–R for takeoff. But if for any reason they are crowded or they—it isn't feasible to use it as—for instance right now a runway, 25–R, is closed down for this major million-dollar repair that we are doing. The pilot is given the runway by the tower.

Mr. MOULDER. That is the Federal Aviation Administration?

Mr. FOX. Yes; that runs the tower.

Mr. MOULDER. Now, as I understand, you concurred with another witness who testified that your rules and regulations were superseded by the Federal Aviation Administration?

Mr. FOX. Yes, sir. In the area of the flight. One area that we moved in on very strongly was the suppression of runups at night between the hours of 10 at night and 7 in the morning on the ground.

That is an area that we, as a landlord, have control over, and we exercise this control very rigidly for jet engine runups.

Mr. MOULDER. Thank you very much, Mr. Fox.

The next witness, Mr. Belding, chairman of the Los Angeles City Airport Commission.

The committee will recess for a period of 5 minutes.

(Recess taken.)

Mr. MOULDER. The committee will be in order, please.

Mr. Don Belding, who is president of the Los Angeles Board of Airport Commissioners. He is also chairman of the Los Angeles Sound Abatement Coordinating Committee.

Are you ready to proceed, Mr. Belding?

Mr. BELDING. Yes, sir.

STATEMENT OF DON BELDING, PRESIDENT, LOS ANGELES BOARD OF AIRPORT COMMISSIONERS; CHAIRMAN, LOS ANGELES SOUND ABATEMENT COORDINATING COMMITTEE

Mr. BELDING. Congressmen Moulder, Brock, and Derounian, I am very happy to come here today to tell you what efforts we have been making on both the airport commission and the sound abatement committee in this problem. As you noted, I am presently president of the Los Angeles Board of Airport Commissioners, having been appointed by Norris Poulson, mayor of the city of Los Angeles, and in connection with my duties and responsibilities at the Los Angeles International Airport and the Los Angeles-owned Van Nuys Airport, I also serve as chairman of the Los Angeles Sound Abatement Coordinating Committee.

For your information I am the retired chairman of Foote, Cone & Belding, one of the world's largest advertising agencies, and I serve on several national and local committees strictly as a matter of civic duty and responsibility.

My comments before this subcommittee today will fall into two classifications, and I will do my best to be as brief as possible.

The first will deal with the formation of the sound abatement committee, its membership, aims, and objectives, and the functions of its complaint center and the 10 positive actions which we have taken since the formation of the committee in an attempt to alleviate the unpleasant sounds made by jet transports operating in and out of the Los Angeles International Airport.

The second could properly be entitled "A Look Into the Future" in this very perplexing matter of jet sound, and I will try to offer a few suggestions.

The jet age, as it is known today, came to Los Angeles on January 25, 1959.

It was on this date that a turbine-powered jet transport made the first transcontinental flight, reaching New York from Los Angeles in about 4½ hours.

This first flight and subsequent jet flights became a high point of interest for many hundreds of airminded California citizens. Literally hundreds of them have gathered at the airport boundaries to witness the arrival and departure of these new jet airplanes and marvel at their speed and obvious grace of flight.

Residents on the perimeter of Los Angeles International Airport voiced no objections to the comings and goings of transports until last May, just 11 months ago, and at that time the frequency of flight increased to about 12 to 15 daily.

The sounds made by these new aircraft, particularly the short-wave-length compressor whine, obviously concerned some of the residents and they vigorously made their feelings known to the airport management, the airlines, the Federal Aviation Agency, and just about anyone who had a telephone and had an identification with aerial transportation.

The frequency of these complaints from the nearby residents caused the department of airports, the airlines flying jet equipment, and the FAA, to form the sound abatement committee in July 1959. In addition to the Federal Aviation Agency and the airport department and the airlines, there was added to this group the Airline Pilots Association, the Air Transport Association and the Aerospace Industries Association. The organization chart in your brochure will fully explain this committee's makeup.

Now, in addition to the basic committee, a technical subcommittee, a community relations committee, and an executive committee were established, and I was elected chairman.

On August 17 of last year, the committee employed Tom Towers, aviation editor of the Los Angeles Examiner, as director. He was granted a year's leave of absence from the Examiner. He established a complaint center office on the airport grounds and now functions with an assistant, Jack Shelley, and a secretary.

The main purpose of the office is to process complaint calls and letters, and to give information of a specialized nature on jet operations to all who call or write, and, in general, to provide a service insofar as possible to those who object to jet operations.

The director has no authority to alter flights of jet aircraft, but he does have the right to make recommendations. He reports to the executive committee on the average of once a week. Open meetings for representatives of community groups are held monthly so they can see what we are doing and what is going on.

Now, if you gentlemen would follow me through the pages of the brochure that I just left with you, I should like to outline the positive actions taken by various bodies at the airport since the formation of the sound abatement committee in its attempt to alleviate the unpleasant sounds made by jet transports.

Bear in mind, if you will, that these steps were taken with the full knowledge that nothing the committee could suggest or recommend should in any way compromise the safe and sane operation of the jets. Safety must come first and must not be compromised.

Action No. 1, July 1959: Jet pilots were requested by the FAA to fly on the high side of the glide slope. The penalty was back to flight training.

Action No. 2, August 6, 1959: East takeoffs banned by the department of airports between 11 p.m. and 7 a.m. except when 10 knots or more of east wind prevail.

Action No. 3, September 1959: Pilot requested to keep straight course on normal departures reaching the shoreline at an altitude of at least 1,500 feet before making turns. The recross altitude was also established at 1,500 feet.

Action No. 4, October 1959: Pilot cooperation cards were issued, and these must be read by the pilot before he takes off.

Action No. 5, October 15, 1959: East takeoffs ban extended to 10 p.m.

Action No. 6, October 15, 1959: Special wind direction and velocity meters were installed at the east and west ends of the airport so the pilot would know the actual direction and speed of the wind on the ground.

Action No. 7, October 22, 1959: The instrument glide slope elevation was raised from 2.75° to 3°.

Action No. 8, October 22, 1959: Downey approach changes were put into effect.

Action No. 9, January 1, 1960: Jet engine night runups regulation was put into effect limiting to 65 decibels readings of aircraft operating within the maintenance area, which means the average street noise of a residential street during daytime.

Action No. 10, January 1, 1960: The extension of the main instrument runway from 10,000 to 12,000 feet and the placement of the landing threshold 600 feet farther west.

Now, this is a very important thing because it will enable—if FAA will permit the airplanes to come over this area a good deal higher and land 2,000 feet farther down the runway than they do now, and on takeoff, it will make it a much safer runway. Twelve thousand feet is also better than 10,000 feet. We hope that this will have a great deal to do, and be a great help, and cost the city of Los Angeles $1 million.

Now, the sound abatement committee feels that these 10 action steps have done much to alleviate the unpleasant sounds made by the jets, and they will do even more when the runway is extended, and we have a statistical record of complaints to support this fact.

Now, for the second and final phase of my remarks:

It would be unrealistic to assume that communities which have been established close in to an active airport can expect to be totally and completely isolated from the sounds made by arriving and departing aircraft. However, there is some measure of optimism that can be shared by all interested and involved in this problem.

A recent study by the Airport Operators Council detailed the entire jet aircraft sound problem and also set forth some very practical suggested solutions.

Under the subheading "Future Technical Prospects" the study pointed out that the basic technical problems relate to noise suppression or elimination at the source. In other words, the engine.

Second, improving the performance characteristics of the aircraft at takeoff; and, last, improving the ability of the aircraft to make a steeper descent on landing.

Now, this report continues:

Since the ability of the aircraft to ascend after takeoff at a higher rate of climb and descend in the landing approach at a steeper rate of glide is fundamental to the reduction or elimination of the aircraft noise problem, it would appear that this is the most likely area for research and improvement.

Fortunately, basic work in this field has already been pioneered by the predecessor of the National Aeronautics and Space Administration, the National Advisory Committee for Aeronautics * * *.

They have developed and proven the fundamental principles of boundary layer control and jet flaps, principles that when applied to transports of the current jet types make it possible for them to ascend at a higher rate of climb, and descend at a higher rate of glide, both with safety * * *.

I would like to take just a second to explain the landing we made in Paris just this last week. The pilot felt he was not going to make the threshold, so he gunned the motor in order to get higher, and in his descent he came down over 5°, and we bounced three times, and if there had been one malfunction of that airplane when we did that, I would have been dead today. You can't compromise with safety. This airplane, as presently constructed, must come in on a low glide.

I should like to note that this type of experimentation has been conducted only with the military jet fighter aircraft.

Now, the Airport Operators Council is of the opinion that research should continue in this specialized field right away with commercial jet transports.

At the Los Angeles International Airport level, a future solution of the sound problem might be found in the rezoning of the critical residential areas under the approach path to an industrial classification, and the placement of the planned Century Freeway in such a way as to obtain maximum sound abatement results. Incidentally, in this matter of rezoning there is not only a shortage of industrial acreage around the airport, and I am sure that very intelligent rezoning will be very profitable to the residents of the critical areas, but the new Century Freeway will be an east-west link, connecting with the San Diego Freeway, which will pass near the airport, and it will also connect with several other north-south freeways east of the terminal, and those are now in full operation.

The establishment of the exact route of the Century Freeway has not been finalized at this time. It is still under consideration by the California State Division of Highways. We are doing what we can to implement it and speed it up, but it has not yet been finalized.

Now, I should like to make this final observation, Mr. Chairman: The proper committees of Congress we hope will give serious consideration to national sound abatement aspects when appropriating Federal airport aid funds. If certain dollars could be marked for sound-abatement purposes, such as runway extension, which will let the planes land farther down, the needed navigational aids, I feel that the results would more than justify the outlays.

I also feel very keenly about the use of jet transportation as a means of spreading the gospel of Americanism throughout the world. American-built jet transports are now calling at most of the major cities of the world, and they will continue to do so in ever increasing numbers.

There are some who say that the American-engineered space vehicles hold the key to this Nation's dominant position in the field of geopolitics. This might very well be true. However, I feel that the amount of nonobjectionable jet transports will do much more at the grassroots level to cement good relations than will these celestial vehicles.

Accordingly, I would like to see the National Aeronautics and Space Administration, which is devoting so much time and money to space technology, adopt a "crash" program for the research and

development of jet engines and noise suppression devices that could make the American-built jet transport a welcome visitor at every airport throughout the world.

Now, I have a statement, Mr. Chairman, which I won't take the time to read, but I will submit it for the record. It involves what the department of airports has done in the way of trying to prevent the establishment of schools in glide paths. The resolutions we have passed and so on, copies of the regulations are attached, and I submit it for the record.

(The statement referred to by Mr. Belding follows:)

Honorable members of the House Subcommittee on Transportation and Aeronautics I hereby request permission to file an additional statement for the official record of these proceedings.

The placement of schools and other buildings of public assembly near active airports is something that has been of much concern to the Los Angeles Department of Airports and the Los Angeles Board of Airport Commissioners.

In order to forewarn school officials, planning departments, and the State department of education on this count, the board of airport commissioners did on February 4, 1953, approve resolution 669, which states in part:

"Whereas it has come to the attention of the Board of Airport Commissioners of the City of Los Angeles that in one instance a public school in the Lennox School District, county of Los Angeles, has been constructed in the easterly approach zone leading into Los Angeles International Airport * * * without the prior knowledge by or consultation with members of this board, the management of the Los Angeles International Airport, or the city of Los Angeles * * *."

The resolution continued:

"*Now, therefore, be it resolved*, That the appropriate government agencies having jurisdiction in the premises, including the school districts of the city and county of Los Angeles, the planning departments of the city and county of Los Angeles, the State department of education, and other pertinent agencies be requested to refrain, insofar as it is possible, from the construction of school facilities of places of public assembly in or near airport approach zones * * *."

The school in question, Mr. Chairman, is the Felton Avenue School, located just 6,000 feet east of the main runways at Los Angeles International Airport and directly under the approach path.

Construction of the school—and I repeat, without prior consultation with the Los Angeles Department of Airports—was started on February 18, 1952.

It is indeed unfortunate that the trustees of the Lennox School District saw fit to place the Felton Avenue School in such an undesirable location.

Two schools of the neighboring Inglewood Unified School District were similarly placed under the approach path leading to Los Angeles International Airport after Resolution 669 was approved and distributed to all interested parties.

I refer to the Clyde Woodworth School at 3200 West 104th Street, Inglewood, and the Albert Monroe Junior High School at 10711 10th Avenue, Inglewood.

Construction of the Woodworth School was started on July 15, 1953, more than 6 months after Resolution 669 was passed. Work on the Monroe School was started on August 20, 1953. These construction dates have been furnished by the State of California's Division of Architecture.

Construction of the Morningside High School, the site of today's hearing, was initiated on October 16, 1950. This school also was placed under the approach pattern leading to Los Angeles International Airport, although it must be noted that like the Woodworth and Monroe Schools it is 3 miles east of the airport.

According to reports, the selection of a site for the Morningside School was made after the general public and the officials of the Hollywood Turf Club objected to another location that was then in mind. This site was north of the approach zone, but immediately east of the racetrack's backstretch.

It was felt by all concerned that this backstretch influence would be most undesirable for the proper education of students.

Site selection for schools, churches, hospitals, and other such structures of public assembly is often difficult because of land availability factors.

When such buildings are to be located near active airports it is not enough to just check to the north, south, east, and west—it is also imperative that someone look up.

I am submitting a copy of Resolution 669 for the subcommittee's interest and information.

Mr. BELDING. Thank you very much. It is very kind of you. I would be happy to answer any questions.

Mr. MOULDER. Thank you, Mr. Belding.

Any questions, Mr. Brock?

Mr. BROCK. Yes, Mr. Chairman.

Mr. Belding, I have not had the opportunity of reading this supplemental statement that you are asking to include.

Mr. BELDING. Would you like for me to read it? It will only take 5 minutes.

Mr. BROCK. I will just ask one question. You might be able to answer it in less time than that.

I have here a Citizens' Health and Welfare Council, Inc., letter on jet noise abatement. Under "3" it states:

Are you aware Felton Avenue School, Lennox, is bombarded by these screeching jets 50 feet overhead which touch down on it 100 feet beyond the east fence on Aviation?

The runway that you mentioned earlier, is this the runway that will affect the Felton School?

Mr. BELDING. Well, yes, of course, they will both affect the Felton School somewhat.

Mr. BROCK. You will be able to come in at a greater distance from the threshold?

Mr. BELDING. Yes, it would very materially help the Felton School. However, I will say this, and I will probably be condemned for it, but I think there should be another half mile area this way from the airport condemned for industrial purposes, and get these people off the hook. There are certain areas where it is critical, and it just can't get much better. They are too close to the airport and the county of Los Angeles should see that they are rezoned and they can turn this property in for much more than residential property, important residential area, because I have said there is a great shortage of residential area around the airport, industrial area, and it is in constant demand.

There was land offered for $100,000 an acre adjoining the airport. It is very tight. Very tight.

Mr. BROCK. Thank you, Mr. Belding.

Mr. MOULDER. Mr. Derounian?

Mr. DEROUNIAN. Mr. Belding, these positive actions you have listed are to be commended, of course, but what I want to know is if some of these actions aren't complied with what will your committee do to make sure they are complied with, although yours is just an advisory committee in that respect?

Mr. BELDING. Well, we have—you are thinking, I think, of the New York operation. Here in the West we all kind of work together. We try to. In New York you have FAA go in one direction and the airport another and the airlines another direction. Here we are sincerely trying to work together to try to solve this thing.

Now, when something comes up that will require an action of the—normally, in the rule of the department of airports, the airport takes the direction that would be closing of the—or the preventing of night takeoff came out of the sound abatement coordinating committee,

and the department of airports was the facility to put into effect, and did it. That's the way it works. The card thing came out of the sound abatement coordinating committee where each pilot is reminded before he takes off of the problem of noise and to conform to the rules.

Mr. DEROUNIAN. Supposing he forgets. Supposing he doesn't read that card that day and apparently some of them haven't been reading the cards. It is grand to say you are working together.

Mr. BELDING. The complaint comes into the sound abatement center. That is what it is set up for. All those are reveiwed each week by the executive committee, and where action needs to be taken with one airline it is brought to their attention and their cooperation secured as best it can.

Mr. DEROUNIAN. Why do you think it has taken almost a month for Mr. Fox to find out who dropped the ice? [Applause.]

Mr. BELDING. Well, that is a little hard one to answer, I will grant you.

Mr. DEROUNIAN. That is why I am asking it. I don't wish to be facetious about this thing at all, Mr. Belding.

Mr. BELDING. I am beginning to wonder if any ice was dropped, frankly.

Mr. DEROUNIAN. Certainly the ice came from somewhere, and a responsible official wrote to Mr. Fox, and I would say that it probably did drop, and sometimes it is difficult to find out how it happened, but you are just telling me how sweet and light it is here with everybody working together, and you should be able to find out who dropped the ice.

Mr. BELDING. Well, all right. Here is the action taken on that. Certainly I am going to require that the department of airports, under the department of airport commissioners, answer letters of this type within 48 hours in the future, just exactly the same as they do in Washington, and if they cannot supply the answer they will say so, and that they will put in——

Mr. DEROUNIAN. It is helpful——

Mr. BELDING (continuing). Put it under research until they do find the answer. The error that was made here was that the research was started without making an immediate reply.

Mr. MOULDER. Mr. Belding, in connection with that, I am curious to know just what shape or form was this piece of ice? Was it specifically identified as manufactured ice, or was it the type of ice that might have been attached?

Mr. BELDING. I couldn't answer that. Those don't come——

Mr. MOULDER. Couldn't be anything but wing ice, I assume.

Mr. BELDING. I suppose it would be wing ice.

Mr. MOULDER. Thank you very much, Mr. Belding.

Capt. Hal Gregory.

Captain Gregory represents the Los Angeles Office of the Air Line Pilots Association.

STATEMENT OF CAPT. HAL GREGORY, REPRESENTING THE LOS ANGELES OFFICE OF THE AIR LINE PILOTS ASSOCIATION

Captain GREGORY. Mr. Chairman and members of the committee; my name is Capt. Hal Gregory and I reside at Portuguese Bend, Calif. My occupation is that of airline pilot and I hold an Airline

Transport Pilot's rating as issued and approved by the Federal Aviation Agency.

I have been flying for 29 years and have a total of approximately 25,000 hours in the air. Included in my flying time are 700 hours in pure jet commercial transports. I am qualified to fly the following types of commercial aircraft:

The DC–3, –4, –6, –7, the Boeing 707 and the Douglas DC–8. The last two listed aircraft are known as pure jet transports.

My comments before this subcommittee today will represent not only my own opinions, but the true and honest feelings of my fellow Los Angeles-based jet pilots who hold membership in the Air Line Pilots Association.

First, I should like to state that jet-qualified pilots currently engaged in commercial operations throughout the United States are well aware of the sound problems that exist at many of the Nation's major air terminals following the advent of the jet age some 18 months ago.

The Air Line Pilots Association has made all jet-qualified pilots fully aware of public reaction in this regard and—additionally—our supervisory pilots and airline management itself have made it a strong and definite point to keep us all abreast of the situation through constant briefings and reminders.

The Los Angeles sound abatement coordinating committee also has kept jet pilots current on the local sound problem and its director, Tom Towers, has made appearances before our pilot groups for specialized briefings and an exchange of information on the subject of sound reduction.

Further, many of our Los Angeles-based jet-qualified pilots reside in communities on the perimeter of Los Angeles International Airport and hence have first-hand knowledge of neighborhood concern and interest.

I can assure this subcommittee that all airline jet pilots are sincerely appreciative of the sentiments of airport-area residents in this matter of sound annoyance and that as a group we will do all possible to alleviate the condition insofar as the safe operation of the airplane will permit.

No jet pilot worthy of the responsibility that has been vested in him will ever take any steps to create a sound annoyance for any vengeful reason whatsoever. In fact, the reverse is true. Jet pilots will do everything in their power to curb the sounds made by the engines of their aircraft.

However, I must repeat, safety cannot and will not be compromised. I need not inform this subcommittee of the terrible consequences that could result from any major deviation in established flight safety techniques and procedures.

With the permission of the subcommittee, I would like to explain a typical jet transport approach to Los Angeles International Airport, but before I do, I should like to make these two points:

In the field of air traffic control, the Federal Aviation Agency has issued the following priority of responsibilities:

First, safety of persons in the air and on the ground.

Second, noise abatement.

And third, the issuance of traffic clearances in the most rapid manner consistent with safety and noise abatement.

The pilots concur with this table of responsibilities.

And now point two:

Today's modern jet transport cannot be flown like a military jet pilot would fly a single engine jet fighter. The jet transport cannot be handled like a sports plane. It demands the utmost in concentration from takeoff to landing.

The jet transport, especially during the landing operation, must be flown in the flat configuration. An approach for landing cannot be made "high" and the plane cannot be dropped onto the landing area like a dive bomber. To do so would be to invite a disaster.

The modern jet transport must be flown by the "numbers"—not by the "seat of the pants" as airplanes have been flown in another era of air transportation.

The jet transport as we know it today is a well-designed, safe airplane, and its performance to date bears out this fact. Furthermore, the engines that power this type of aircraft have established a high degree of reliability through many years of military flying operations before we receive them.

And now for that typical flight down the instrument glide slope:

On Los Angeles-bound jet flights from eastern and midwestern cities, the pilot brings his letdown from cruise altitude over the area of Daggett and Barstow on the Mojave Desert. These cities are about 175 miles northeast of Los Angeles.

En route to Los Angeles International Airport, the flight passes over Lake Arrowhead at approximately 20,000 feet and the city of Ontario at 10,000 feet.

The flight next passes over the La Habra fan marker and the Downey radio beacon, which is 15 miles east of the airport. Flight over the Downey beacon is at 3,000 feet above sea level and shortly after passing this point the flight intercepts the 3° glide slope.

At the point of interception, the pilot drops the landing gear and flaps of his jet transport and establishes the rate of descent to stay on the glide slope. This occurs about 11 to 12 miles east of the airport. The pilot then proceeds down the glide slope to a landing.

The above described steps have been followed since last October 22, when the glide slope was elevated to 3° and the approach procedure at the Downey radio beacon was revised in the interests of sound abatement.

Before this time, this was the approach procedure followed by all aircraft landing at Los Angeles International Airport.

After leaving Downey at 3,000 feet above sea level, the flight dropped down to 1,700 feet above sea level, and flew straight and level until intercepting the glide slope over the outer marker navigational aid, which is 6 miles east of the airport. The flight then proceeded down the glide slope to a landing, and parenthetically I would like to say from a pilot's viewpoint this whole procedure was much easier for the pilot because during the time that he is following the glide slope and the directional feature of the instrument landing system the degree of concentration is extremely high.

Now, the new procedure that has been adopted is that the glide slope is now intercepted at 3,000 feet above sea level instead of 1,700 feet, and over Downey, which is some 12 miles east of the airport instead of 6 miles. So we are now utilizing a system which requires that same degree of concentration for almost twice the length of time.

The new approach procedure has demanded a longer period of intense concentration to cockpit details on the part of the pilot, but all of us have been pleased to assume this added responsibility in the interests of better sound abatement results.

One concluding point:

On jet departures from Los Angeles International Airport, pilots do their best to pass over the clear zone at the south end of the Playa del Rey hilltop.

During night departures, jet pilots and others are guided by a rotating green beacon at the north end of the clear zone. We all try to fly south—or to the left—of this beacon so as to minimize the sounds made by our aircraft.

Pilot cooperation with the sound abatement program at Los Angeles International Airport has existed since the jet age started early in 1959. It will continue in a manner consistent with the safe operation of the airplane.

That concludes my statement, sir.

Mr. MOULDER. Thank you very much, Captain Gregory, for your interesting and informative information.

Any questions, Mr. Brock?

Mr. BROCK. No questions.

Mr. MOULDER. Mr. Derounian?

Mr. DEROUNIAN. I just have one.

Mr. Gregory, I certainly respect all the pilots we have. They do a terrific job. Piloting a plane requires a great deal of ability and anyone who has been up in a cockpit at a landing knows that it is no easy operation.

However, Mrs. Kovary testified before that the pilots pass over the populated area of Playa del Rey, and she seemed to think, and she has had some experience as a pilot, that there was no apparent reason why they should, and I know that pilots are human and once in awhile they might be thinking of something else, but would you say that what she said is correct or not correct, that they do pass over there more often than they should?

Captain GREGORY. No, sir; I would say that they do not pass over the populated area more often than they should. However, there may be some conflict of traffic that will cause a pilot to deviate from the course that has been outlined by air traffic control before takeoff.

Now, the pilots are very jealous of their prerogative as they might be if they are going to live very long in this business, and you cannot guarantee anybody that you are going to fly a certain straight and level course after departing from any point when there might be a possibility of a midair collision or a possibility of some other aircraft which could be a private plane or someone who is lost passing over an area and therefore causing us to deviate from the original track that we intended to fly.

And there's one point I would like to bring up at this time about the witness making the statement that the airplane appears to turn right and then to turn left. It is well known to most experienced pilots that in watching an airplane come into view there becomes a sort of a mirage or an optical illusion where the airplane appears to turn. Now, in this connection I would like to state that aircraft flying at our altitudes, between 30,000 and 37,000 feet, often approach

one another as we pass over points in the United States, and we know what altitude these boys are flying. They are our own pilots. We know they are holding their altitude within 20 feet plus or minus of their assigned altitude.

I have many times watched an airplane approaching. I would be at possibly 29,000 feet; he would be at 28,000 feet; and all members of my crew would practically take an oath on the Bible that that airplane was higher than we were, and at the last minute the airplane appears to dive and go under us, and all the time he has been exactly at his altitude. Now, these optical illusions are well known in all branches of human endeavor and I submit that that might be the reason that this lady thinks that that airplane might be making a right turn and then a left turn.

Mr. DEROUNIAN. This lady said she saw the plane go over her house, and I'm sure that wasn't an optical illusion, at any rate, Mr. Gregory. Will you impress upon your pilots that this committee is very much concerned about this noise problem and they should make every effort, even though they may have been making it, to make a little extra effort to see that we keep completely out of the populated areas whenever we can.

Captain GREGORY. That is done before every flight, sir.

Mr. MOULDER. Thank you, Captain Gregory.

The Chair wishes to announce that the next step of our proceedings is most difficult without your cooperation.

Is Dr. Joseph Applegate here? I have called for him twice.

(No response.)

The VOICE. Is that the chamber of commerce representative?

Mr. MOULDER. Crenshaw Christian Church.

I was about to say that the next step in our proceeding is most difficult without your cooperation, and I hope that while we proceed that you will cooperate in our sincere desire to keep this a dignified proceeding, and also our desire to cooperate with you in giving you every opportunity to be heard on this important problem. In fact, we are deviating from the ordinary proceedings of a committee in Congress when we ask the officials, Mr. Fox, Mr. Belding and Mr. Gregory; and Mr. Thomas, Director of the Bureau of Air Traffic Management for the Federal Aviation Agency; Mr. Platt, regional manager of the Federal Aviation Agency, region No. 4; Mr. Hand, regional engineer, Federal Aviation Agency; to be seated here on the stage and to be interrogated by the members of the committee and by any person present in the hearing room.

Now, may I caution you that when you do interrogate or ask the question, let it be a relevant question and a direct question and not in form of an argument or a comment or debate. We are not conducting a debate. We are trying to secure information, and I would also suggest that those who desire to ask questions be seated here in the front rows of the assembly room, and when you want to address the question, raise your hand and I will recognize you, and state your name and direct your question to the person, by name, that you are asking a question.

(Mr. Fox, Mr. Belding, Mr. Gregory, Mr. Thomas, Mr. Platt, and Mr. Hand were seated on the stage.)

Mr. MOULDER. I want to thank you gentlemen for being here and presenting yourselves in this matter and subjecting yourselves to interrogation by the people who are interested in this problem. I would also like to say that we think that is a very considerate way for you to cooperate.

Any questions, Mr. Brock?

Mr. BROCK. No.

Mr. MOULDER. Mr. Derounian?

Mr. DEROUNIAN. No.

Mr. MOULDER. Any person desiring to ask a question, state your name and name the person that you intend to direct your question to.

Mrs. KOVARY. My name is Yvette H. Kovary, and I would like to ask Mr. Fox a question.

Mr. Fox, why was no airport representative at the rezoning hearing for the apartment area that I mentioned of over 14 acres, and why was there nothing in the record of the rezoning on that from the airport?

Mr. Fox. I will be glad to repeat the question, Your Honor.

The question is why was no airport representative at the rezoning hearing relating to these multiple-story buildings at Playa del Rey.

We didn't know about it. We were not one of the ones who were notified.

Mrs. KOVARY. Mr. Fox, may I mention that I was not notified either. I read on the front page of the paper, and R–4 means hotels, and we are a heavily populated area, and this was completely unattended by anyone who should be interested in this subject.

Mr. BELDING. I think we are too busy to read all the papers. Why didn't you tell us you wanted us there and we would have been there?

Mrs. KOVARY. Mr. Belding, I believe you have quite a large public relations organization that should look into these things. I don't have much time either. I am a mother of three children and I have to read the papers to find out what's going on, and I think you people who are paid good salaries should do the same.

There is one question I woud like to ask Mr. Fox. Does a pilot choose his own runway except in the instance of construction or emergency, or was that question answered?

Mr. DEROUNIAN. The question was answered, that the pilot chooses his runway unless he is directed in case of emergency.

Mrs. KOVARY. Thank you. And one other question, that is toward Mr. Fox again.

Mr. MOULDER. May I interrupt you. You may direct that question to Mr. Thomas of the Federal Aviation Agency. I think that is a very good question about the pilot having complete choice himself, making a selection of the runway.

Mrs. KOVARY. Well, I wanted to know if Mr. Fox had answered the question completely when he was asked.

Mr. MOULDER. He answered in that manner. Do you want to direct that question to Mr. Thomas?

Mrs. KOVARY. Well, I wasn't especially—I wanted to know if Mr. Fox had completed the answer. Would Mr. Thomas like to explain that?

Mr. THOMAS. Mr. Chairman, if I may, I am with the Federal Aviation Agency. The control tower offers or assigns a runway. The

pilot may elect not to choose to use that runway, if, for reasons of safety, he does not want to. We clear pilots to use a runway. We do not direct them to use it because a pilot is in command and has charge of his flight, but it is not our policy to just choose them at random.

Mrs. KOVARY. I realize that. I was just wondering if you had the right to say, "No, you cannot use the runway that is closest to the populated area. You must use the one that takes you over the unpopulated area."

Mr. THOMAS. Mr. Chairman, at most of the airports we have preferential runways which are the runways of choice under certain wind conditions. In case of Los Angeles that is embodied in a rule, and it is a violation of the rule to use another runway unless, for reasons of safety, which a pilot can demonstrate, he wants to use some other runway under those conditions. The answer still is yes, we direct them, unless for reasons of safety, they want some other runway.

Mrs. KOVARY. Thank you. And I have one last question directed to Mr. Fox.

When he said that the Los Angeles International Airport wasn't costing the taxpayers of Los Angeles a penny. I beg your pardon. They cost the taxpayers 24½ pennies for every man, woman, and child who goes in and out of the airport, and this is from figures that I got from the city controller, the city engineer, and for the fiscal year of 1958 and 1959.

Mr. MOULDER. I believe you said that no taxes are accrued. That isn't a tax, of course.

Mr. FOX. No, sir, the operation of the airport does not cost the taxpayers anything. Mrs. Kovary, our revenues far exceed our operating expenses.

Mrs. KOVARY. Yes, they do. They also do not terminate in a general fund, but the general fund does allow a certain amount of money for bonds, et cetera. That does cost the taxpayers 24½ cents a head.

Mr. FOX. We are also constructing $50 million worth of necessary terminal facilities that aren't costing the taxpayers anything. That is where our surplus has gone, but we are paying a $59,700 bond issue off with no cost. There are previous bond issues in years gone by. I think there is one you are referring to that may still be a part of the general fund.

Mrs. KOVARY. Yes. That, plus a highway addition on the perimeter of the airport, and I wanted to clarify that so that the idea would be gotten across, that this was not an uncostly thing to the taxpayers of Los Angeles. Thank you.

Mr. MOULDER. Now, are there any members of the press who wish to ask any questions?

Mrs. KUPERSMITH. Mr. Chairman, my name is Mrs. Evelyn Kupersmith. We live in the glide path. I would like to direct a question, rather a point of information, to Mr. Fox.

Whom do we contact to make restitution of damages sustained by airport—rather by the flight ships?

Last January—may I make this clear? Last July 23, a part of a Boeing 707 flagship fell on our roof of the apartment. Up to date nothing has been done about it. There is a damage that the building sustained over $2,600 in actual damages. Besides, we have written

statements from tenants that were on leases that broke their lease after incident occurred due to the fright.

Mr. DEROUNIAN. Do you have a lawyer, Mrs. Kupersmith?

Mrs. KUPERSMITH. Yes, we do. We have instituted suit in the civil courts of the city of Inglewood due to the fact that this part that fell on our roof was retrieved by the Inglewood Fire and Police Departments and identified by the Civil Aeronautics Board. At that time there was no Federal Aviation Board, but the Civil Aeronautics Board—as belonging to Continental Air Lines.

We have gotten in touch with Continental and they told us to submit these estimates. We have submitted the estimates, but that is as far as it went. They absolutely now refuse to assume responsibility of any sort, and this has been since July 23, 1959. We had to have the roof of the building partially repaired due to the fact that we were afraid it will rain in and damage our furniture, because our apartments are furnished.

Who do we turn to now and how do we get anyone to assume responsibility?

Mr. MOULDER. Who do you direct the question to?

Mrs. KUPERSMITH. To Mr. Fox.

Mr. Fox. I am not a lawyer, Mrs. Kupersmith, but I think you have a good case. I am sorry, I would direct your efforts toward Continental Air Lines. At least it appears that they have been the identifying company. We can't find out where the ice came from.

Mr. MOULDER. This gentleman on the front row.

Mr. LEWIS. My name is David G. Lewis.

I live in Playa del Rey, and I will address my question to Mr. Belding.

We read in the trade journals, such as Aviation Week, that just around the corner the advent of 3-cent-a-ton-mile air carload transports will be furnished to the airlines and made available generally for freight hauling. This will lead to a tremendous upsurge of freight air transport business. This—if you have a thousand planes a day in Los Angeles, you will have 2,000 or 3,000 planes a day when this takes place.

What advance planning does the airport commission have to handle this sort of traffic?

Mr. BELDING. Well, we have two runways. One runway in operation right now. We will have two as soon as the extension is made of the repairs. There are three runways that will be in operation by the time this jet freight that you are talking about takes place. Those freight planes which now take about a maximum 38,000 to 40,000 pounds, that is, stripped down Constellations, DE–7's, the new turboprop, which is used in Rolls Royce engines in Canada manufacturers, which will have a payload of about 80,000 pounds right off one plane will carry twice as much as has been before. The whole area now of the present terminal will be turned over as a freight terminal, and in addition, a $10 million post office installation which is planned for where the present airport is.

The answer is that with four runways in operation, which we expect to have by 1970, three runways in operation to about 1965 or 1966, is certainly ample to take care of the great business which will feed in the odd times during the time when the traffic is light. Now, there

are 26 gate positions. There will be 26 gate positions reserved for freight at the new terminal where the old terminal is now.

Mr. LEWIS. May I ask Mr. Belding one more question?

Would it not be more practical to divorce the freight traffic from the passenger traffic entirely, and whereas some people feel that the passenger traffic should be near the center of a large metropolitan area, would it not be just as practical to bring in the freight at a far distant airport where an extra hour into town would do little or no harm? Has there been any thinking along this line?

Mr. BELDING. Yes. To go back to the economics of it, naturally on freight the competition is even keener than it is on passengers, so they are anxious to get to the place where the facilities are best and the haul is less because if they have to haul all their freight an extra 40 or 50 miles, the cost of that becomes very severe. So it gets down to a matter of economics. This airport is convenient to the southern California area, and the freight lines want to use it. We will have a place for them and we can handle the traffic.

Mr. LEWIS. May I ask one more question of Mr. Thomas?

In the new FAA regulations what specific enforcement will you have in regard to planes which violate the altitude and the coastline regulation? How will you enforce this regulation? Do you have the power or should the Congress be informed of the fact that you lack the power to enforce regulations?

Mr. THOMAS. Mr. Chairman, we have power to enforce any regulation we write. I don't think there has been any contest on that at the moment, as Mr. Derounian stated earlier.

Mr. LEWIS. May I make a comment on that?

There was some article in Aviation Week very recently which implies that pilots flaunted FAA regulations to an extent of remarking to an inspector who asked, "Why did you have your feet up on the cockpit during your flight across the country while we were monitoring the flight?" The pilot, in so many words, replied, "Well, I would have had my feet on the cockpit if you hadn't been here, so why shouldn't I put them up here while you were here?"

Now, if you have enforcement rules it certainly looks like you would not have your regulations and your inspectors flaunted by this sort of attitude.

Mr. THOMAS. Mr. Chairman, unfortunately there has been publicized several cases of disagreement. This was one, and I believe enforcement action was taken in this particular case, and several others. There is the disagreement that has been, I think, overdramatized, but we have been engaged in a strong enforcement program. Many of the people think a little bit too strict, but in answer to our basic question, we have the authority to enforce our regulations.

Mr. LEWIS. Thank you.

Mr. MOULDER. This gentleman here.

Mr. HAWKS. Mr. Chairman, I am Russell Hawks of Aviation Week. I would like to address a question to Mr. Belding.

I have been over talking to Douglas Aircraft Co. on their air cargo plans, and their cargo moves at night, and I was wondering what this is going to do to your noise abatement problem since that was one of the first steps you took, was to try and cut down the problem at night?

Mr. BELDING. Well, these planes, turboprop, probably not pure jets,

so that they will leave, as I understand it, on cargoes they plan to have, out of the east before 9 o'clock at night.

Mr. HAWKS. Does this hope to be selling jet cargo transports by 1965, and according to their figures, everyone likes to send their aircraft between 10 and 12 o'clock so that this will arrive at the start of the business day, and just about compelled to have a night schedule.

Mr. BELDING. Well, I do know the Sound Abatement and the Department of Airports permit takeoffs from 10 to 7, that is, where the noise—but we don't have anything to do with that. It would be whatever FAA decides.

Mr. HAWKS. Has there been any discussion of a cargo terminal in the airport governing bodies? I believe this has been done in a few cases, at least temporarily. I think that O'Hare in Chicago for some time functioned as a cargo terminal.

Mr. BELDING. I am not too familiar with that. I think—again, the economics of the East. If there is someplace we can do that, the business area—wouldn't be too long. If there was a place like that they probably would use that as an air terminal.

Mr. HAWKS. There has been no discussion——

Mr. BELDING. Are you thinking of——

Mr. HAWKS. I wasn't thinking of any particular airport. I was just wondering if there had been any discussion, to your knowledge, of creating a cargo terminal. They are looking for a heavy volume of traffic.

Mr. BELDING. We have talked a little bit about it at the Van Nuys Airport. We only have a 10,000-foot runway out there and a very good one, and we still—and there's been some discussion to know that the cargo is now at the Lockheed Air Terminal in Burbank.

Mr. HAWKS. Thank you.

Mr. WOODY. My name is William M. Woody, and my question is to the FAA representative.

Has anybody anywhere ever conducted tests, the DC–8 or the Boeing 707, to determine under full load what the safe landing angles are?

Mr. THOMAS. Mr. Chairman, there have been some tests and I might say that there hasn't been perhaps complete uniform application. The different possible configurations. However, there was a meeting of all the operators of the DC–8 and the DC–7 in Washington to get together with us and come out with the standard best method, taking into consideration noise abatement and safety.

Mr. WOODY. One more question.

Every time one of these comes and shakes the roof, the radio goes out and TV shakes all over. You go out and look up and it is TWA. United and the others don't seem to make so much noise.

Can you give me any reason why TWA should be so much noisier than anybody else?

Mr. THOMAS. No, sir; I have no comment.

Mr. WOODY. That is all. Thank you.

Mr. VOGEL. My name is Rod Vogel.

I left my car out. I didn't have a garage for it, and is there any possible way that petroleum—I'd like to direct my question to the pilot at the end.

Is there any possible way petroleum could come out from the planes and spot your car, because I have some spots on it about this big [indicating], and my dad called the airport, and a guy came out and analyzed it, and we never heard any more about it.

Captain GREGORY. I don't think that it would be possible for aircraft to spot your car unless you were within—I'd say, 700 or 800 feet of the engine when one went up.

Mr. VOGEL. I live under the glidepath on 106th and Prairie.

How come they didn't tell me what the stuff was? The guy analyzed it and we never heard any more of it.

Captain GREGORY. I don't know. What was your analysis?

Mr. VOGEL. I don't know.

Mr. MOULDER. This lady.

Mrs. JOHNSON. Mrs. M. T. Johnson. I live at 10218 Dickson Avenue. We own an apartment house. We have two cars. One of my cars had to be left outdoors and petroleum, that the gentleman just spoke of—I took it down to the automobile club and they analyzed it as it was dripping off the plane, and they turned around and made comprehensive coverage on it, sir. So I thought I would inform you on that.

Now, there is another statement I would like to direct to you, sir. My husband has had 23 years of flying, so he knows a little bit about flying. When I can look out of my window right up here on Dickson Avenue, which is 3½ miles from the airport, and look up and see TWA Mexican airplanes flying around, and our Army and Navy planes flying that low—I know when he was in the service if he flew under 1,500 feet he would lose his flight pay for that month.

How come they are not penalized in what they are doing to us now?

Captain GREGORY. The question is just a little vague. Could you tell exactly how high the airplanes were?

Mrs. JOHNSON. I don't have any idea. Dickson Avenue is just one block up from here. I was washing my dishes and looked up and was able to see the name of the plane, able to see the numbers on the plane, the type of plane, so naturally it must have been very low flying in order to be able to make that out as far as numbers are concerned and all that.

Captain GREGORY. Well, under the regulations under which civil aircraft operate in the United States, we must maintain at least 1,000 feet clearance of all terrain until you are in a landing pattern, and if they were lower than that they were definitely in violation.

Mrs. JOHNSON. My husband has been out there several times cutting the lawn and he—as I explained before, and he wagered to say that some of them weren't over 200 feet over our apartment house. And I have had my apartment house up for sale since last August, sir, and as far as getting back to real estate, I have dropped the price three times and to no avail, and I have proof to the effect.

Mr. MOULDER. This gentleman here on the left.

Mr. HODGES. My name is Ray Hodges. I would like to direct a question to the FAA gentleman.

Who has the authority or the control of the plane while it is on the airport ground? Does the airport official or the FAA have the control before the plane leaves the airport?

Mr. THOMAS. Mr. Chairman, if I understand the question correctly, while the airplane is taxiing on the maneuvering area, and while he is taking off, that is under the control of the FAA control tower.

Mr. HODGES. Of the FAA control tower? The reason I ask that, I'd like to direct this question to Mr. Belding on the Noise Abatement Commission.

The problem has been—may I state a fact? That the 1:35 plane—I did not retire at that time. I do not retire until 11:30 when the planes come over at that time. There is no—I can't sleep. At 11:35 on approximately 2 to 3 evenings a week up to a short time ago there was a takeoff easterly. My neighbor's lights would turn on. My lights would turn on. I'm approximately 5½ miles from the airport. My house would shake, windows would rattle and bring me up out of bed no matter how much I was asleep.

Approximately 5, 6 weeks ago during the time of the storm that is excusable. My grandson, second grandson, was born at that time, and my first grandson was visiting our home.

On the 1:15 plane he came out of bed screaming and it was 3 o'clock before we got him back to sleep. At 3:35 another plane came over, and 4:30 another came over, so I did not sleep that night.

Why, in the interests of 5,000 to 10,000 people, on the easterly approach of the Los Angeles Airport, would it not be possible to hold those flights until the wind did get down to a point where they could take off to the west after 11 o'clock at night? Why, for the interests of economy, or you might say for the interests of property of the private line, do they have the privilege of invading my home, making my home unuseful, that I have lived in for 20 years? I can't understand why something can't be done, that a private company has a privilege of making my home unlivable.

Thank you, gentlemen.

Mr. BELDING. That has now been taken over. That is FAA's jurisdiction. That is not under the jurisdiction of the airport.

It is a matter again of economics in the competition of trade and transportation. This is the greatest and principal source of travel in and out of Los Angeles, and 6 million people coming and going each year. More than that. It is increasing all the time. Do you have adequate insulation or acoustical ceiling or anything of that sort?

Mr. HODGES. In answer to that, I spent $194 during the month of November in which I converted the ceiling in my home. I will, in the summer months, open one door. Have to spend another $250 to $300 for air conditioning because my home is not livable in the daytime during the time the planes fly over, but that isn't the question. I'm a businessman. I have my own business. My business is suffering because I am not getting my sleep at night. Sometimes as much as two or three times a week. I have lived there 20 years. I can't afford to move. But this is not a question of debate. I understand—I asked a question, why, if the wind would go down in 20 to 30 minutes, that a plane with 120 passengers shouldn't be, for another 15 minutes, delayed so it was safe to take off in a westerly direction, and why, regardless of reports from the tower that there was no wind, they couldn't take off in an easterly direction after 11 o'clock at night? I can't go to bed before 11 because there are three planes, as everyone here in this room is here to testify, come over between a quarter of

11 and 11:15, and everyone of those planes naturally are going to disturb any household that they cross.

Mr. BELDING. That is now in the hands of the FAA. Mr. Quesada has said that it is an interruption of their commerce, and everything that goes with it, to regulate so that they have to take off at certain times and land at certain times under regulation.

Do you want to add anything to that?

Mr. MOULDER. Let us hereafter make questions brief without comment, if you can. Thank you very much. Thank you.

Mr. DEWITT. My name is Mrs. C. A. DeWitt. I live at 10912 Lemoli Avenue, just about three blocks straight down from the school here, 3½ miles from the airport.

My husband is an invalid and has been for nearly 14 years. We suffer so much, especially the eastern takeoffs. I don't remember exactly the date, but sometime ago there were three easterly takeoffs within 10 minutes. That may seem exaggerated, but it was the truth. I had my husband out in the yard in a wheelchair, and this was the third time—we have had similar experiences, but this was the first time three came within 10 minutes and flew so low that my husband went into shock. He was in shock for at least 6 hours under sedation.

Mr. MOULDER. What is your question?

Mrs. DEWITT. I would like to know—I called the airport. Mr. Towers eventually came out to see us. I would just like to know from Mr. Belding or Mr. Fox, either one, what do we do in cases of this kind where we have an invalid. Our home was especially built for a person in a wheelchair. We can't move. We have too much money invested. What can you do in cases of that kind? Our house has been insulated. We put in 3½ inch insulation, air conditioning. We haven't had any relief. What do you suggest? Either Mr. Belding or Mr. Fox, either one.

Mr. FOX. It certainly is a very difficult question. One of the reasons that we hopefully try to restrict easterly takeoffs. It is an unfortunate thing that these planes are causing you so much—I don't know what your answer is. If you have done insulation and you have made the necessary additions, the air conditioning in your home, it has been indicated to us that that is at least a good partial solution. Frankly, I don't know.

Mrs. DEWITT. We have 3½-inch insulation put in the house and have not had any—like the previous gentleman said, come right over and shake our roof, actually shake it at times. The whole thing vibrates.

Mr. MOULDER. The next question. The lady in the front row has a question.

Mrs. CASE. I am Mrs. Harry W. Case, and I live on property which is almost kitty-corner from here. My husband and his family have owned it since 1916. September, 2 years ago, we were still zoned for agriculture. We live on an acre and a half.

I would like to ask Mr. Belding if he knows why, if he is interested in controlling this area, he did not attempt to keep this still agricultural. It was changed to an R–2. We managed to get the change to an R–2 rather than an R–3, because we pointed out to the county—we are in the area that has now become the city of Inglewood as of the election on Tuesday. We pointed out to the county that it was a pri-

vate home area. We had built homes which were designed with lovely yards in the back and we were not interested in having people looking down into—and we did hold it to an R–2, which means that mainly people will build single-story dwellings.

Mr. MOULDER. What is your question?

Mrs. CASE. If the airport can do anything about this, why weren't they interested in it, because we were meeting and heard no one from the airport make any statement at all to the county and they had this meeting in this same auditorium to ask for these very things. Should we remain agricultural? Should we change to R–1, R–2, or R–3? Or should we have been made manufacturing at that point?

Mr. BELDING. Well, that is going back a little farther in time. I wasn't on the Commission. I have been on the Commission 6 years and that was——

Mrs. CASE. It is 2 years ago, Mr. Belding. Two years ago last September.

Mr. BELDING. This is in the county of Los Angeles?

Mrs. CASE. Yes.

Mr. BELDING. Which we have no authority whatever.

Mrs. CASE. But you are interested——

Mr. BELDING. As a matter of fact, they resent our asking; they sometimes resent our dropping by. We have no authority on that at all. I do believe, as I said, that zoning is a partial answer to this. Business is asking for land on this, and I'm sure that if it is handled properly by the residents themselves—we can't—that it would be a partial solution in the critical areas.

Mrs. CASE. What was that you were talking about, about a pass from the airport? How would you go about that? I understood you to believe that it would be a good idea.

Mr. BELDING. If we would go for clearance of land under eminent domain. This would have to be a bond issue. That is, we have funds for building of the airport, but we cannot surpass that. We do not have the money. If the residents of this area think that that is an important thing, then they should so indicate themselves, and then we do have a cleanup bond issue if we do. Then it should be added to, and I think you are right.

Mrs. CASE. I have another question which I would like to address to Mr. Gregory first, and then to Mr. Thomas to answer.

I would like an explanation of this "safety" that we have heard so much about today. Everyone keeps saying that it is necessary because of safety to make easterly takeoffs. If this is true, Mr. Gregory, why, within a minute over our house, do they come in from the east if it is necessary to remove a plane by the east? Surely it would be necessary to bring it in from the west if it is the wind that is a problem.

Captain GREGORY. Mrs. Case, in answer to that question, it is a possibility that the second aircraft that you heard that was on the landing approach was one of the piston-type aircraft.

Mrs. CASE. No, it was the jet. I realize what you are speaking about.

Captain GREGORY. In answer to that, the navigational facilities for landing at Los Angeles International Airport are set up for landings toward the west only. A jet aircraft is less critical on land, as you

can understand the aircraft, having flown from New York or Washington to Los Angeles, and something on the order of 50,000 is much lighter than the aircraft that are departing, and therefore it is more feasible for this aircraft to land with a 10-knot tailwind than it is for heavier loaded aircraft taking off for the nonstop trip to Washington or New York, to take off with that tailwind. All of these things are predicated on information out of engineering.

Mrs. CASE. I realize you are speaking of a 10-knot tailwind. I am talking of something less than the 10 knots. I have called the FAA control tower. They have explained to me that they asked planes to go the other way and all the pilot had to do is write a letter and say, well, he had too much fuel that day and although the tailwind was only 6 knots an hour, he felt that it was better to go that way.

As a pilot, do you write to approach when you are coming from New York to Los Angeles International Airport with airplanes taking off that close to you?

Captain GROGEGY. No, ma'am. But those——

Mrs. CASE. Thank you.

Captain GREGORY. Those things are controlled by radar and there is no possibility.

Mrs. CASE. Are you sure?

Captain GREGORY. I am as sure as the radarman is.

Mrs. CASE. I don't think he would guarantee it.

Mr. MOULDER. Next question.

Mrs. CASE. I would like Mr. Thomas to give me the FAA's version of that, too.

Mr. THOMAS. Mr. Chairman, I believe Captain Gregory explained it, but I would like to add this: If—in fact, since April 4 this regulation went into effect, the wind was less than 5 knots and has been indicated. Then the pilot can tell the tower he would like to take off to the east, but he has got to support it. With engineering data, this can be checked. This is no whim.

Mrs. CASE. Then what happens?

Captain GREGORY. If he is right, nothing happens. If he is wrong, he is then in violation. Insofar as the safety is concerned, we are all human, but our whole effort is dedicated to prevention of collision, and there are certain separation standards, and these planes are not looking at each other, one right against the other either; separated by distance.

Mrs. CASE. Never had a midair collision?

Captain GREGORY. We have had midair collisions.

Mr. MOULDER. This gentleman here in the second row.

Mr. CARRUTHERS. My name is Carruthers. This is a fight between the people on the ground and the jets in the air. Coming down to a showdown, it is now. Is the welfare of the people on the ground to be——

Mr. MOULDER. Let's confine—This is an interrogation, that you ask a question, please.

Mr. CARRUTHERS. I'm asking if the welfare of the people on the ground is to be sacrificed for the benefit of the jets? In other words, it is a fight between the civilian population on the ground and the companies operating the jets overhead, and I would come to a point of decision. Either the people on the ground have to lose and suffer

the consequences, or something has to be done to see that the jets won't destroy our people. That should be, I think, something to think about. Could I have your opinion on that, Mr. Belding?

Mr. BELDING. Well, I can tell you this, that the 6 million people a year on this airport now depend—in a few years it will be 10 or 20 million people, and everything that is behind them, all their lives are depending on it.

Mr. CARRUTHERS. And the people on the ground, the 10,000 or 50,000 people on the ground now?

Mr. BELDEN. What we do on that now is to do everything we possibly can to alleviate the noise, as we have been doing within the scope of the sound abatement committee.

Mr. MOULDER. Now, the next question. Let's have no arguments.

Mr. HAWKS. I have three fast questions for Captain Gregory, Mr. Belding, and yourself.

Mr. MOULDER. Make them direct.

Mr. HAWKS. Captain Gregory, I understand that the runway at Los Angeles International Airport slopes down from east to west at 5 degrees. Correct?

Mr. FOX. No, it does not slope at that range. There is a 30-foot differential between the westerly side and the easterly side, straight out over the 10,000 feet.

Mr. HAWKS. Could you tell me what the difference is in takeoffs of a fully loaded, let's say a 707, east versus west?

Captain GREGORY. Well, that would have to be checked on occurrence. However, with absolutely no wind, that amount of slope would be negligible, but if you were taking off with a 10-knot headwind and you decided, for experimental purposes, to go down to the other end of the runway and take off the other way, you can see that the differential at that point would be 20 knots, as well, which makes a considerable difference.

Mr. HAWKS. Mr. Belding, I think investigations indicate that it would cost about a million dollars a mile to build monorail if you were going to move an airport out to the desert. Can you verify this figure? That is, a monorail transportation system.

Mr. BELDING. A monorail? Well, I was in France last week, and I went all over the French monorail system, which is just about ready to be offered to the world, and they told me they had now figured it cost, that three and a half million dollars a mile would be just about what it is going to turn out to. They haven't quite finished their research.

I have, as a member of the Metropolitan Transit Authority, I believe that that can be liquidated in revenue bonds, but couldn't be just out to Palmadel, for instance, but could be up to the airport.

Mr. MOULDER. This next gentleman.

Mr. HAWKS. I have one more question.

Mr. MOULDER. We want to be fair and divide the time equally and recognize everyone we can. This is the second time you have been recognized. Several other people have questions, and we are going to adjourn in just a few minutes.

Mr. ERB. I am John O. Erb, 4607 Lennox, and I am with the coordinating council, also vice president of the City Citizens Association in Lennox.

I think Mr. Belding made the statement that there were no complaints before about June of 1959 on the jet planes. My question is to Mr. Fox, if he remembers the plane that took off at 3 o'clock in the morning on March 18, 1959, and complaints had come in. As I was on the improvement committee I got a good many telephone calls. I called out at the airport, and at that time——

Mr. MOULDER. What is your question?

Mr. ERB. I want to know—I think the committee should have this letter because that complaint went in from the citizens association, approved by the coordinating council of Lennox, and that still stands, and we can furnish the committee with a copy of the letter that we sent to Mr. Fox. Mr. Fox answered that, and since stated the runways will be completed by September 1960, which we are a little short of now. But I want the committee, to make plain to the committee that the coordinating council and also the Citizens Association of Lennox still has that same complaint. They haven't withdrawn it. If it hasn't gone through on regular circulation, we want to go on record as still opposing the jets, the noise of the jets, the easterly takeoff, and we still think they should do something.

Mr. MOULDER. The third row there.

Mr. GIULIAN. Bruce G. Guilian. I'd like to ask Mr. Fox—I have had some occasion to go out to the airport, and it is quite a popular pastime to watch the planes land and take off, and having sat up on the hill in Ontario you can view all of the airport and watch the planes land, jets and piston-engine planes alike, and they seem to come in and land just beyond the fence, just beyond the barricades of the runway, and they taxi in and slow down. They seem to take up only half of the runway for taxiing, to turn around and come back down.

I would like to ask why they can't go farther on the runway before they touch ground. Probably they could come in higher over our school in particular and save us much time wasted during the day because we have to stop for the plane to pass over.

Mr. Fox. I think the answer to that is that these big, heavy planes come in at a high rate of speed—say, 150 miles an hour or so, on landing, and they land early on the runway and like to keep the big reserve ahead of them in case the reversible thrust in their jets doesn't work to slow them down, or if they have hydraulic failure they have a safe overrun. It is true that the majority of the airplanes landing do not use up the full runway length on landing, and we are trying to get the program underway to have them land farther down within, again, the limits of safe operation.

Mr. GIULIAN. They will make it possible for them to go further before they touch ground?

Mr. Fox. Yes.

Mr. MOULDER. In connection with that—it is a very interesting question as asked, are there any other devices that have been considered in slowing down airplane landings quicker so as not to use the entire length safely?

Mr. THOMAS. Mr. Chairman, yes, sir; there have been quite a few devices which have been used; gone to barriers used by the military in commercial aviation, but in general there have been thoughts toward placing water toward the end of the runway, or things of this nature.

At the moment none of these have been too successful, although we are still looking into them. Your largest dependence is either on brakes or thrust reversals, but we would like to keep as much of the runway ahead of the pilot as we could and keep the touchdown point the same in good weather or bad weather, and keep a uniform glide in it at all times.

Mr. MOULDER. The fifth row back there, the young man.

Mr. SMITH. My name is James A. Smith. I am also a high school student. I would like to direct this question to the pilot.

Isn't it true that because of the westerly winds that a jet aircraft would not land westerly because he would reduce his safety factor in the length of the runway on coming in?

Captain GREGORY. I'm sorry, I didn't understand the question.

Mr. SMITH. Isn't it true that when a 707 or a DC–8 jet aircraft lands westerly, in a westerly direction, coming over the ocean, that if they would touch down and if a prevailing wind were blowing at the time, this would severely cut down their safety factor in the additional running of the runway?

Captain GREGORY. You mean——

Mr. SMITH. Any downwind?

Captain GREGORY. That is quite true, and the same thing holds true of the takeoff. It is more pronounced at the time when an aircraft is taking off.

Mr. SMITH. And another question along the same lines: Is it also true that with additional thrust some of the airlines have proposed for their planes, they want to refit their 707 and DC–8 with more power, that this would increase the takeoff through itself and by this way they could practically eliminate the easterly takeoffs at night?

Captain GREGORY. That is true. The airlines, when they obtain this high power, would be able to abandon the easterly takeoff with the exception of times where the storm passes.

Mr. MOULDER. We have time for one more, and then we will have to close this, gentlemen.

A VOICE FROM AUDIENCE. I would like to ask Mr. Fox now what percentage of jet operations take off to the east, realizing the jet operations being of a smaller number, if there are few jet flights, the percentage would be much larger?

Mr. FOX. Our last count through the stormy season was, I think, 36 jet takeoffs since February up to the present time, and we have an average of 90 operations per day in jets, so that if you multiply the days from February 1 to now by 90 and divide 36 into it, you have got the percentage. It is very minimum. It is lower than 4 percent, I would say.

A VOICE FROM AUDIENCE. You feel that is a true fact? How about the 94 that were taken off during the stormy period?

Mr. FOX. They were a combination of piston and jet airplanes. I am quite sure we didn't have 94 jetplanes.

A VOICE FROM AUDIENCE. Mr. Brock, you said that you were on a committee investigating smog. Have you investigated anything as to the smog effect that takeoff of the jetplanes have when they take off from Los Angeles International Airport?

Mr. BROCK. I would like to say to the witness I don't know what effect jetplanes contribute to smog conditions.

Mr. BELDING. The air pollution department has made a study. It is a good one. You can get it by contacting the air pollution committee downtown. They have made a special study of it.

Mr. MOULDER. The committee thanks the people who have cooperated with us in the conduct of the proceedings which we have had today. We are grateful for the excellent facilities and arrangements made and provided for us in the conduct of our work. This is a committee of the U.S. Congress, and we especially commend Dr. Arthur Berke for his splendid arrangements and for his organizing and presenting the fine people who have given us a very clear picture and understanding of the serious problems resulting from jet-powered aviation.

This congressional Subcommittee on Transportation and Aeronautics of the Interstate and Foreign Commerce Committee will carefully consider the facts and all recommendations presented to us today. Then we will report our findings and recommendations to the full Committee on Interstate and Foreign Commerce.

Please be assured that we will diligently strive to take such action as is necessary to help solve the serious problem involved as a result of the noise, damage, and dangers emanating from jet-powered airplanes operating to and from the Los Angeles International Airport.

Any statement, Mr. Brock?

Mr. BROCK. No. I have enjoyed my one day in Los Angeles and hope to be back with you again some time. Thank you.

Mr. DEROUNIAN. I think these are excellent hearings, and I hope they produce the results we want to produce.

Mr. MOULDER. The hearing will be adjourned.

(The following material was submitted for the record:)

THE PREPARED STATEMENT OF THE STUDENT COUNCIL OF MORNINGSIDE HIGH SCHOOL—STUDENT COUNCIL REPORT FOR SOUND ABATEMENT AS PRESENTED TO THE CITIZENS HEALTH AND WELFARE COUNCIL BY DICK POPKO

Many citizens are worried about jet noise imposing on their private property, but few realize the serious condition of the public learning institutions in this area. There are over 20 schools in the jet noise range, 3 of which are Inglewood schools. Therefore, the citizens of Inglewood should be concerned.

Some reports claim that jet noise only bothers class business for a few seconds, and that it is nothing to worry about. But as a student, I can verify the fact that jet noise is a nuisance to the teachers and students of Morningside High School.

When you were younger, you probably remember how your mind was distracted by an unusual sound, or someone making a loud noise in the hall, or something passing the window. Approximately one-half of the class can hear the teacher as the jet flies over—if he doesn't stop to wait. There is also a great percentage of the class whose minds are distracted, and who have a difficult time snapping back into order. I am worried because, as high school students, we have this problem, and what happens in schools such as Woodworth and Monroe, where the younger minds have usually a difficult time paying attention in class without unreasonable jet noise.

With the serious problem in mind, the student council of Morningside High School, without any assistance, decided to present a report to show that many high school students do have some interest in community affairs, contrary to popular belief. Responsible for the project was Mike Cadenhead, junior class vice president, who was assisted by Dick Popko, senior class president. With several ideas in mind, Mike decided to get a schedule of the planes which pass over our school in 1 day. Each school session has an average of 25 jetplanes flying over the Morningside vicinity. During each passage of the jets, it was decided that a 25-second loss of class time was encountered, beginning when the plane comes into hearing distance until it passes the hearing distance. Work in the classrooms comes to a temporary stop because of the piercing noise of the jets.

When this time is totaled, we have lost approximately 10 minutes of each day's work; this comes to 1 hour each week. With 4⅓ weeks in each month, we lose 5 hours. On a yearly basis, this adds up to a total of 45 hours of valuable class time lost. This figure is not too great, but when you consider that 82,405 man-hours are lost in Morningside alone, and approximately 400,000 man-hours with other affected schools included, it makes you wonder whether all this noise is necessary.

The Inglewood Unified School District reports that the average cost for each student is $2.82 per day, or 47 cents per hour. At this cost, the school district is literally spending $850 per day, $4,250 per week, $18,417 per month, and $165,653 per year, on useless classroom time. These shocking figures only pertain to Morningside High School. If this figure included Monroe, Woodworth, and schools outside the district, it would total almost $2 million.

With all this valuable time lost, a student cannot possibly get the full advantage of a good education.

May I also comment that in a matter of years, some of us will be designing and building jet aircraft; without a complete basic education there will be a great margin for error. The airplane factories cannot afford this margin, as lives and property will be endangered.

I would like to sum up by saying that we are not complaining just to be petty and troublemaking, but that we are going to school to obtain the most important thing of the future—a good, sound education.

We can do without the sound.

STATEMENT OF TOM TOWERS, DIRECTOR OF LOS ANGELES SOUND ABATEMENT COORDINATING COMMITTEE, LOS ANGELES, CALIF.

Testimony offered at the hearing by certain Inglewood-area residents indicated that jet pilots employed by Trans World Airlines have and are showing a disregard for feelings of residents on perimeter of Los Angeles International Airport in the matter of jet sound abatement.

Records of the Los Angeles Sound Abatement Coordinating Committee's complaint center do not bear out the truth of such testimony.

Trans World Airlines jet pilots and officials of the company at the Los Angeles level have exhibited a high degree of interest in the overall jet sound annoyance problem at Los Angeles International Airport and have cooperated in every manner possible to curb unpleasant sounds on approach to Los Angeles International Airport, on takeoff and during the testing of jet and piston engines during the critical sleeping hours.

Trans World Airlines pilot personnel are in everyday contact with the complaint center of the Los Angeles Sound Abatement Coordinating Committee and offer helpful suggestions and advice on methods that can be employed to reduce annoying sounds made by jet transports.

APRIL 17, 1960.

Hon. JOHN F. SHELLEY,
San Francisco, Calif.

SIR: Reading in the local paper about the meeting next Wednesday on jet noise at the San Francisco Airport, I wonder if you couldn't place this letter in the hands of the proper person.

I live about a mile from the Long Beach Airport in a nice residential district, and the noise from jet takeoffs and landings is terrifying. More flights are evidently being added each month, and as these planes pass over or very near our house, it's unbearable.

The prop planes we can stand, but the jets, no.

I don't want to stand in the way of progress, but there's a limit to everything.

These are commercial planes.

Am writing to you on advice of Hon. Craig Hosmer's secretary.

Anything you do will be very much appreciated.

Thanks in advance,

FRANK K. TAYLOR.

LONG BEACH, CALIF.

(Whereupon, at 4:50 p.m., the hearing was adjourned.)

AIRCRAFT NOISE PROBLEMS

WEDNESDAY, APRIL 12, 1961

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TRANSPORTATION AND AERONAUTICS,
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met, pursuant to call, at 10:10 a.m., in room 1301, New House Office Building, Hon. John Bell Williams (chairman of the subcommittee) presiding.

Mr. WILLIAMS. The committee will be in order, please.

The Subcommittee on Transportation and Aeronautics is meeting this morning to hear a progress report from the Federal Aviation Agency regarding aircraft noise abatement.

The problems of aircraft noise and the hazards presented to persons and property on the ground by aircraft flights have been under consideration by this committee for a long time, at least as far back as the series of accidents in the Newark vicinity some several years ago.

In writing the Federal Aviation Act of 1958, Congress gave the newly created Federal Aviation Agency much more authority in this area than had been granted to the Civil Aeronautics Administration by the Civil Aeronautics Act of 1938.

This increased responsibility grew out of a suggestion made by our late colleague from Georgia, the Honorable Prince Preston, who appeared before this subcommittee in the hearings of the 1958 act to urge that the authority of the new agency be extended to cover operations of crop dusters.

The committee, anxious to give the new agency ample authority to make regulations for the safe operation of aircraft, decided not to limit the expanded authority to crop dusting operations but to make the language of the act broad enough to give the new agency authority to protect persons and property on the ground generally.

Abatement of aircraft noise, we all realize, is a complicated and highly technical problem. Not only involved is the safety and well-being of persons and property on the ground, but of aircraft and passengers in flight, so that in making rules and regulations the Federal Aviation Agency must keep in mind the safety of all concerned.

It also must be kept in mind that under the act the Administrator is charged with the responsibility of promoting, encouraging, and developing civil aeronautics and regulating air commerce in a manner to best promote its development and safety and to fulfill the requirements of national defense.

We have two witnesses scheduled to appear today, Mr. James T. Pyle, Deputy Administrator of the Federal Aviation Agency, and

Mr. Charles Adler, Jr., of Baltimore, who has requested an opportunity to testify before the committee at this open hearing.

I am informed that circumstances make it necessary for Mr. Adler to leave in a very few minutes, and Mr. Pyle has graciously consented to let him go on first.

So at this time I am going to recognize Mr. Friedel to introduce the witnesses.

Mr. FRIEDEL. Mr. Chairman, members of the committee:

It gives me great pleasure to introduce the next witness, Mr. Charles Adler.

He is one of my very good constituents. He has been granted over 50 U.S. patents covering safety devices in general use on railroads, highways and in the air. He is listed in Who's Who in America, and Who's Who in World Aviation, is a life member of the National Aeronautics Association, a member of the Aircraft Owners & Pilots Association, the Wings Club, and so forth.

He was for 6 years a commissioner of the Maryland State Aviation Commission.

He holds a private pilot's license.

He has owned four airplanes.

One of his latest patents is a pilot warning instrument system. He has turned it over to the Government at the cost of $1, no royalties whatsoever. I am very happy to introduce Mr. Adler to testify and tell us why this system has not been adopted, as yet.

Mr. WILLIAMS. Mr. Adler, we will be very glad to hear from you, sir.

STATEMENT OF CHARLES ADLER, JR., BALTIMORE, MD.

Mr. ADLER. Mr. Williams, Mr. Friedel, ladies and gentlemen, Mr. Pyle: This is more or less of a very short résumé of what has happened since I invented the proximity warning indicator back in 1947, applied for patent in 1948, and the patent was granted in 1951.

It is called the Adler patent airplane proximity indicator, No. 2,560,265, filed on December 24, 1948, and issued on July 10, 1951.

This patent was assigned as a gift to the U.S. Government pro bono publico on August 18, 1951, for free use by all.

This patent, for the prevention of midair collisions, was given to the Government after I had been making similar gifts to the Government of my patents covering aircraft flashing lights and reflector lamps of high intensity used in wingtip and rotating and oscillating light units for making the aircraft more conspicuous at night. These external lighting inventions covered my patents which I gave to the Government are now in general use.

I might add that the old CAA was very gracious and gave me a beautiful citation for these gifts.

My airplane proximity indicator patent covers apparatus that will work both day and night under all weather conditions. In this patent, for purposes of illustration, I have described a system using the reliable principle of radio. Briefly, each aircraft is equipped with an omnidirectional transmitter which continuously sends out high frequency waves or impulses.

Each aircraft also has directional receivers which actuate directional audible and visual signals in the aircraft cockpit.

It works like this:

If the alarm sounds and the left cockpit light lights, the pilot is informed that another ship has intruded within the predetermined danger zone around his ship on the left side. If the right alarm and signal lights, the intruder is to the right. If the top light lights, a ship is dead ahead. And if the bottom light is energized, an intruder is aft. This is simple, proven, directional radio.

I might add that also it operates only at the altitude at which the aircraft is flying.

I understand the Bendix Radio people in conjunction with the Federal Aviation Agency recently equipped two aircraft with apparatus using my invention—for which they gave me full credit for having had the basic concept—together with splendid additional ideas of their own. The system worked perfectly in actual flight tests, I am told.

But while my patent illustrates a new directional radio system, the claim, which is the measurement of the scope of the patent, is much broader. It covers the basic formula for pilot warning systems and it is not limited to the principle of radio.

Electromagnetic waves of any nature such as radar, infrared, ultraviolet, and so forth, may be employed, and the pilot warning equipment on both aircraft is still covered by the claim.

The claim is on the last page of the patent, copies of which I have here.

Thus, this patent, broadly covering air-to-air pilot warning, has been owned by the U.S. Government since August 18, 1951. It does not expire until 1968.

Ground-to-air traffic control is, of course, vital to effect the orderly flow of air traffic in the airlanes and adjacent to terminals where pilots are flying on instrument flight rules.

But air-to-air pilot warning is just as vital to protect each aircraft from intruders by placing around each ship a safe area of airspace. Air-to-air pilot warning instruments will provide safe passage to aircraft on either I.F.R. or V.F.R. And this is true whether flying in the airlanes or off of the airlanes beyond the realm of the ground controller.

Both systems are necessary. One complements the other.

I have here, which I will leave, copies of an article which I wrote in 1949 which appeared in the magazine Aviation Operations, now defunct, two copies of the patent—they are on file with the FAA—and a very nice letter from the FAA dated July 19, 1960, in which they say they are going ahead with ideas originated by me and given to the Government for free use by all.

Also a photostat of the citation given me by the CAA back in 1953, which I treasure very greatly, and a letter from Mr. C. F. Horne, the Administrator of Civil Aeronautics back in 1951, accepting the proximity warning indicator for the Government, and also letters from the Air Force and from Mr. Horne accepting the reflector lamps which are now in general use on practically all aircraft.

If it is necessary to leave this, I will do so.

Also my copy of the original assignment to the Government for which I assigned for the consideration of $1—I never got the $1—the entire right, title, and interest of the airplane proximity indicator to the Government in 1951.

Mr. WILLIAMS. That concludes your formal statement? Thank you very much.

(The documents referred to may be found in the files of the committee.)

Mr. WILLIAMS. Mr. Friedel, do you have any questions?

Mr. FRIEDEL. Mr. Adler, I want to commend you for the great service you have done for the American Government with your various patents.

What I am worried about is that on August 22, 1951—and I have a copy of the letter here that you submitted from C. F. Horne, the Administrator of Civil Aeronautics—in which he said:

> Please accept the sincere thanks for your assignment to the Government of your patent No. 2,560,265 covering an airplane proximity indicator.

The question comes to my mind: Why has not something been done sooner than this to perfect this patent?

And do you think that if this was in effect, that we could have avoided the collision that we had last year over Brooklyn?

Mr. ADLER. I think it very possibly would have been avoided because the pilot would have been warned. Why nothing has been done, I do not know.

Lots of things were done with my other inventions on lights. They have been placed in use. The CAA and the FAA have been most cooperative in every respect.

But I just think, in my own opinion, that there was no money available for it, and the interest was not particularly high.

The interest was revived each time there was a midair collision such as the Grand Canyon collision and the one over Maryland between a Capital Airlines airliner and a pursuit ship of the Maryland National Guard.

Each time it was revised, but nothing was done about it, sir. Why, I do not know, with this one particular patent that I gave to the Government.

Mr. FRIEDEL. Well, I hope to pursue this further, because I think it will prevent future accidents from collisions. But let me ask you this: Is this done by radio or radar? How does your patent work?

Mr. ADLER. The patent itself illustrates the principle of radio, but the claim, which measures the scope of the patent, how broad it is, how basic it is, does not limit it to radio.

Other means can be used, if they will work. We know that radio will work, as illustrated in the aircraft. Bendix has demonstrated that and also I had it checked by New York University School of Engineering and Johns Hopkins University School of Engineering. And the fact that Bendix has built the thing, plus ideas of their own which are splendid, proves conclusively that the thing will work.

My point is this: Two forms of anticollision devices should be used: ground to air, which is vital; plus air to air, which complements it. To have the perfect picture you must have both.

Mr. FRIEDEL. That is all, Mr. Chairman.

Mr. WILLIAMS. Mr. Devine?

Mr. DEVINE. Thank you, Mr. Chairman.

Mr. Adler, do you have any objection to my inquiring as to your approximate age?

Mr. ADLER. I will be 62 in June.

Mr. DEVINE. And what is your occupation or profession?

Mr. ADLER. Inventor.

Mr. DEVINE. Inventor?

Mr. ADLER. Yes.

Mr. DEVINE. I think that you should be highly complimented for your service to your Government. I am reminded of the remark made by our President at his inaugural address. People should see what they can do for the Government rather than what the Government can do for them.

I think that applies very well to you, although that particular statement, Mr. Chairman, is not necessarily unique to our present President. I think it was lifted from a previous veto message.

But I think you should be complimented, sir.

I would like to ask you this in connection with this: Is it a proximity indicator?

Mr. ADLER. The latest thing they call it is a pilot warning instrument (PWI).

It is called CAS, collision avoidance system.

Mr. DEVINE. My question is, in connection with that, what is the range from, say, an aircraft flying at 10,000 feet, and there is something in the area, say, 3 miles to the left, how early does the warning device go into operation with the lights?

Mr. ADLER. It can be set for any distance at all.

Mr. DEVINE. You mean it can work up to, say, 10 miles?

Mr. ADLER. Oh, yes; 10 or 25 miles.

The farther it works, though, the less control you have, because then you begin to get other ships that are not going to do you any harm.

Mr. DEVINE. I am thinking of the tremendous speed of the jet aircraft.

Mr. ADLER. Yes.

Using radio you can set it for any approximate area around the ship.

Mr. DEVINE. And are these effective just to aircraft, or would it apply in flying over mountain peaks? Would it pick up objects such as terrain?

Mr. ADLER. If radar were used, it probably would, but the system I have illustrated, it would not, because every shiy would have to be equipped.

The way I have illustrated it in the patent, it is what is known as a cooperative system, although the claim does not limit it to a cooperative system.

We know from experiments that Bendix and others have made that a cooperative system is a reliable system because you do not get any false alarms in the aircraft.

If that alarm rings or buzzes and the light lights, you know it is another aircraft broadcasting in the vicinity, and which light lights or which alarm rings, you will know the direction in which it is coming.

Mr. DEVINE. You have assigned these various patents to the Government?

Mr. ADLER. Yes.

Mr. DEVINE. As a gratuity?

Mr. ADLER. As a gratuity, yes; pro bono publico.

Mr. DEVINE. I think you should be complimented as a fine American.

Mr. ADLER. Thank you, sir. That means a great deal.

Mr. DEVINE. That is all.

Mr. WILLIAMS. In association with my colleagues, I want to offer my congratulations and express my appreciation, also, for the efforts that you have made in this field.

I realize that this is something that the aviation industry has been seeking for many, many years. Whether you have the answer to the problem, of course, remains to be seen, but I do want to compliment you on working toward a solution of it and express the hope, of course, that you have found that solution.

I would like to ask you before we close, first, what is the weight of the equipment that is required for this use?

Mr. ADLER. I do not know, Mr. Williams. The Bendix people could tell you because they have built it. They have actually built it, and I understand it is now down at Atlantic City under the jurisdiction of the FAA. I imagine it can be made very compact because it is radio.

Mr. WILLIAMS. I take it that the FAA is exploring the possibilities of its use?

Mr. ADLER. As far as I know, they are.

They wrote me a letter which I will leave with you—that was written last July—saying that they were doing everything possible. But what has happened since Bendix turned it over to them, I do not know. I do understand that Bendix was successful in having it operate between two aircraft.

Mr. WILLIAMS. Does this system operate with a rotating antenna?

Mr. ADLER. No. It has a sending antenna that sends in all directions, and then it has directional receivers that pick up in specific directions.

Mr. WILLIAMS. Does it send vertically as well as horizontally?

Mr. ADLER. It is limited to the altitude at which the aircraft is flying so that you do not get false indications from aircraft well below or well above.

Mr. WILLIAMS. What do you mean, "it is limited"? Does it go out in a certain degree, in a beam that is so many degrees wide?

Mr. ADLER. Yes, it does that; and also I understand that it can be connected with the altimeter so that it receives only at the particular altitude at which the aircraft is flying.

You see, Mr. Williams, all I have given here is a patent. The claim of the patent is so broad that it does not specify any particular type of apparatus.

Any apparatus that will do that covers the invention. It is a remarkable patent, it really is, and that it why——

Mr. WILLIAMS. I am thinking in terms of the accident that occurred in the Grand Canyon. One of the planes apparently descended down on top of the other one, or the other one rose up under the one at the higher level.

Mr. ADLER. As soon as it got within range, he would get the indication.

Mr. WILLIAMS. But they would not have been at the same altitude 10 miles away?

Mr. ADLER. That is true.

It depends on how you set the apparatus, to what limits you want it. You see, you have to establish a happy medium between what you do want in the way of altitude and what you do not want.

If you want too much variation in altitude, you can get it, but then you will be getting indications from ships that are not going to do you any harm. And the pilot will then start to disregard it.

It is a matter—the range, also the distance, is a matter of decision of what you really want, as well as a matter of altitude which will give the best results.

The patent does not specify any particular distance as to range or altitude selection. You can have anything that you want. It is just a question of finding which is the best means for doing it.

Mr. WILLIAMS. You indicated that you could adjust this to make it register another airplane at 10 miles?

Mr. ADLER. Yes.

Mr. WILLIAMS. But you can also reduce that or cut it down to where it will only show aircraft at 2 miles, for instance?

Mr. ADLER. Yes.

Mr. WILLIAMS. How is that done, by reducing the strength of the signal?

Mr. ADLER. Yes, that is the way I had it done. Bendix, I understand, have what they call a skip-jump system, showing the distance of the aircraft and the rate of closure both. They have gone a step further, but it still comes within the claim of the patent.

It would infringe the patent, had I not given the patent away.

Mr. WILLIAMS. Mr. Collier, any questions?

Mr. COLLIER. No, thank you, Mr. Chairman.

Mr. WILLIAMS. Any further questions?

Thank you very much, Mr. Adler.

Mr. ADLER. Not at all.

Mr. WILLIAMS. Mr. James T. Pyle, Deputy Administrator of the Federal Aviation Agency.

It is indicated here, Mr. Pyle, you are accompanied by Mr. Daggett H. Howard, General Counsel, Mr. Clifford P. Burton, Chief of the Special Projects Division, Office of Plans, and Col. Charles H. Williams, Chief of the Noise Abatement Branch, Office of Plans.

STATEMENT OF JAMES T. PYLE, DEPUTY ADMINISTRATOR, FEDERAL AVIATION AGENCY; ACCOMPANIED BY DAGGETT H. HOWARD, GENERAL COUNSEL; AND COL. CHARLES H. WILLIAMS, CHIEF, NOISE ABATEMENT BRANCH, OFFICE OF PLANS

Mr. PYLE. Mr. Chairman, we did not bring Mr. Burton. Colonel Williams will cover the problems that come up in his area of responsibility.

Colonel Williams is the Chief of the Noise Abatement Branch in our Agency.

Mr. WILLIAMS. Before you get into your prepared statement, would you like to comment on the testimony that was previously given to us?

Mr. PYLE. Yes, Mr. Chairman, I would like to do so.

Mr. WILLIAMS. It would be better if we did that because that deals with the subject that is not related to noise abatement.

Mr. PYLE. I understand, and I would like to start by commending, as you have done, Mr. Chairman, Mr. Friedel, and Mr. Devine, Mr. Adler's contribution in this very important area, because it is a very significant one.

I think he deserves a tremendous amount of praise for his contribution and participation in this very difficult work.

This is not a simple subject. The question of proximity warning, collision avoidance, is pretty much wrapped up as an anticollision system, and I agree with Mr. Adler.

There are two aspects to it. One is adequate ground control and this, of course, we have testified to at considerable length before you and the members of your committee on this point, an adequate air traffic control system.

The second point is what we do in the aircraft by way of either proximity warning or pilot warning, as Mr. Adler refers to it, or collision avoidance.

Now, there are many problems.

I would like to say right here and now that if there were a practical system that we could put in the airplane, I think it would be in short order that we would have the regulation requiring this.

As Mr. Adler points out, his system is a cooperative one. It requires installation in all the aircraft and if one does not have it, to that extent, the system is compromised.

This is one problem.

The second one is the question of range and altitude. This a very difficult one, because you could well imagine a pilot coming into a high density area such as New York, and that device lighting up like a Christmas tree in all directions. As a result, the pilot does what he does very often with the engine, with the throttle on. He just turns it off, because it is a nuisance. And, as a result, your system then at this point becomes compromised.

Now, you could probably require that there be no turnoff switch, for example, but, by the same token, if he has a light on his right and his left, what does he do? He might well turn right into a collision.

So I think the system, whereas proximity warning or pilot warning has tremendous appeal, collision avoidance is what we are really after, and you have to build on first the ability to detect a threat and then what do you do by way of positive evasive action that does not create an even more dangerous hazard.

Now, this is where the problem gets very, very difficult, and, quite frankly, we have some 68 proposals, I think. My numbers may not be quite accurate, but it is over 60 proposals in our Research and Development Bureau to consider on collision avoidance.

We have one large company that made a considerable investment, thought they had the answer, only to find that it fell down.

Just the matter of the turbulence of the aircraft threw the computations out to the point that in rough air his system was valueless.

So we have some very difficult problems that must be resolved, because we cannot put something in unless it is absolutely fail safe that it will work practically. It is one of the high priority projects in our Bureau, and I would hope that we can give you a good picture of this when you and your members come up to Atlantic City, where we can give you a good briefing on the whole question of anticollision avoidance.

One of the important parts of it, for instance, is the see-and-be-seen principle, the conspicuity of the aircraft in daytime, what are the proper designs or application of conspicuous paint like Dayglo.

The night problem, I think Mr. Adler's contribution, rotating lights, is a very important one, and it has saved many lives, unquestionably.

But we still have further to go.

In what direction is the airplane going, for instance? We cannot tell this too well at night. I am sure many of you have seen aircraft at night. You do not know whether they are going away from you or coming toward you, if you cannot see the wing-tip lights.

You just see the one rotating beacon.

We have some real problems in this area. The problem of altitude is a very serious one, because, if you remember, in the Brunswick accident, it was a climbing airplane that hit a descending airplane.

There is good reason to believe that the same situation prevailed in New York, so that you cannot just take a flat plane and say this is where your exposure is because it is not.

It is descending, climbing, as well. So it is not simple. This is the point I am trying to get across.

Mr. WILLIAMS. Are you familiar with the particular patent that has been given to the Government by Mr. Adler?

Mr. PYLE. Yes, I am. Basically this is a responsibility, however, of the Bureau of Research and Development to evaluate, and this was turned over, if I recall correctly, to the Bendix Corp.

They are to evaluate all such proposals, and I think it is in that connection that this project to which Mr. Adler refers, where they actually took it out and flew it——

Mr. FRIEDEL. May I inquire about one thing there.

It was not Mr. Adler that turned it over to Bendix. It was through the FAA; was it not?

Mr. PYLE. This, I think, is correct.

Mr. WILLIAMS. Do we understand that Bendix is now in the process of evaluating this?

Mr. PYLE. They are evaluating this and other proposals, and if I understand the Bendix contract, Mr. Chairman, they are to come up with those areas that look most promising, and then we will go from there.

In effect, they are carrying out a screening operation for us, and we want the benefit of their technical knowledge to supplement ours, to be sure that we overlook no stone in this very difficult area.

Mr. WILLIAMS. Do I understand that you might anticipate that when you eventually find a solution, it will not be one system that is offered but probably a utilization of several systems?

Mr. PYLE. To me, I think if we are successful, it would go something on the order of initially possibly a proximity warning device of some kind, which would carry out the same function to which Mr. Adler refers, warning the pilot that there is an exposure.

We would then add to this, as soon as it could be developed, a collision avoidance system, which would prescribe the evasive action that the pilot would take, and we would add that to the initial device as, let us say, a modification of a supplementary device.

The basic device would be to find out what the exposure is; that there is an airplane in your vicinity; and then there would be the second phase which would be more complex, involves computers among other things, to anticipate:

Is there a collision course; what direction and speed is the airplane taking; and how do you avoid it?

Do you make a sharp turn to the right; do you descend; do you climb, and so forth?

This would be the second phase, and would build on the initial building block or foundation of the proximity warning device.

Mr. WILLIAMS. Before you get into your prepared statement, there may be questions.

Mr. Collier?

Mr. COLLIER. No.

I would like to reserve my questions.

Mr. WILLIAMS. Mr. Friedel?

Mr. FRIEDEL. Mr. Pyle, I realize that there are a lot of complications, that you just cannot come up with one particular system.

But it is my understanding that Bendix has done a lot of research on this and they have perfected it and turned over to the FAA, for demonstrations, and now you have it in Atlantic City for further study.

What I want to know: If it is good, why is it not in effect now?

Mr. PYLE. I think, Mr. Friedel, it is partly for the reason that—

(*a*) It is only turned over to us for test and evaluation, and it is now up to us to see: Does this thing really work.

(*b*) And we have to do this by hours of actual flying, experimenting with it, finding out is it foolproof, is it reliable.

Mr. FRIEDEL. I understand it can be set for 5 miles, 10 miles, 15 miles, a 20-mile warning, and with the proximity of 500 feet from your left.

Now, I do not know how——

Mr. PYLE. This might not serve our purpose, frankly.

Mr. FRIEDEL. What did you say?

Mr. PYLE. This might not serve our purpose. The average jet descends at 2,500 feet a minute, and you can cover a lot of distance at a fair speed of 2,500 feet a minute.

Mr. FRIEDEL. Both pilots would be warned. If a pilot is going up, he would be warned and the other one coming down would be too.

Mr. PYLE. Not if there was an altitude plane of 500 feet.

Mr. FRIEDEL. I do not know the height, but I know the distance on the same level.

Mr. PYLE. These are some of the problems, sir, that we have to evaluate, because we do not want to let our weight down on something that looks appealing, but we have not actually tested and evaluated it, because we are not doing our job as laid out by Congress if we do so. And this is the project that we now have active in Atlantic City.

Mr. FRIEDEL. That is one of the things—I am going to Atlantic City—that I want to see.

Mr. PYLE. We will take great pleasure in showing it to you.

Mr. FRIEDEL. That is all, Mr. Chairman.

Mr. WILLIAMS. Mr. Devine?

Mr. DEVINE. No questions at this time.

Mr. WILLIAMS. Thank you.

Now, if you wish, you may go into your prepared statement, sir.

Mr. PYLE. All right.

Mr. Chairman and members of the committee, we want to thank you for inviting the Federal Aviation Agency to appear before your subcommittee today to give you an up-to-date report on the status of various measures being taken to alleviate the aircraft noise problem. This problem has many different aspects, and continuous cooperative effort on the part of all those who share responsibility will be required to keep it within reasonable bounds.

Those who design and manufacture aircraft, and particularly their powerplants, must do their part. The operators, who maintain the aircraft, train the crews, and direct flight operations, must see to it that their obligations to the public are met. The flight crews, having learned optimum flight procedures for noise abatement, must adhere to them carefully at all time. The airport operators and the local communities must do their part not only to keep noise away from people but also to keep people away from noise.

The Federal Aviation Act of 1958 charges this Agency with the responsibility to insure safety of aircraft flight into and out of airports. Also, the act charges the Agency and its Administrator with the promotion, encouragement, and development of civil aeronautics.

Then, too, it must be remembered that no Federal agency has the authority to zone property in the vicinity of the airports, which are locally owned, and are the province of the local community.

It is important to remember that in most instances airports were originally located in sparsely populated areas. Less than 20 years ago, an airport was seldom found within the bounds of an established community. Most were out in the country, where homes or other buildings were sparsely located. Today, most of these same airports are surrounded by housing developments, schools, and shopping centers. Aircraft noise has become a serious problem in these developing communities, and is affecting larger and larger segments of our community life in varying degrees.

Mr. Chairman, I would just like to comment on this point. In 1931 and 1932, I was a member of a Marine squadron that operated out of Floyd Bennett Field, and we used to do dive-bombing at the present site of Idlewild, and there was not anything except ducks for miles around.

Now, the situation, of course, in the last 27 or 28 years is completely changed, as we are all aware. This is part of the problem we are up against on this whole noise problem, which is the development of communities around airports.

These airports represent an investment of hundreds of millions of dollars in both local and Federal expenditures and grew from our national requirement for air commerce and military aviation. Introduction of modern jet aircraft for military needs, and more recently the civil jet transports, have lent added significance to the role of airports in our national life.

There are no foreseeable changes in these requirements. In fact, continued growth is necessary and may be expected to keep pace with the general trend of our economy.

In the earlier days, piston-engine aircraft—their sight, their sound, and their use—became commonplace. Against this background of familiarity have recently come new and different sounds: the high-pitched whine and roar of the turboprop and the jets.

These sounds were first heard by the aircraft neighbors living in the vicinity of our military bases and were recognized as an essential part of our military strength. However, these same sounds, when created by commercial aircraft, are met with an entirely different public psychology—and strong feelings against their propagation.

The aircraft noise problem is aggravated by the location of commercial airports, which, to serve their purpose, must be in reasonable proximity to population centers. This is not usually the case with military airports.

Pratt & Whitney has developed hush kits on all of its turbofan equipped commercial jets. The kits were developed to reduce the high-pitched compressor whine associated with fan engines during approach and other low-power settings. I think it has been said, Mr. Chairman, in this connection that if one were to design a siren, probably the most efficient siren ever designed was the jet engine, and this is part of our problem.

All new engines being delivered by Pratt & Whitney contain the kit as standard equipment. American Airlines has undertaken a $1.8 million retrofit program to install hush kits on all its turbofan engine equipped 707 and 720 aircraft.

This sum represents one-third of the cost; the other two-thirds is being borne by Pratt & Whitney.

I think that is an excellent example of the cooperation between the manufacturing industry and the air carrier industry in getting something constructive done in reducing noise. Of course, this is particularly important because this noise is a front-end noise, and as the aircraft approaches the airport and goes over the community, it is beamed right at those people who live in the approach area.

A research program, begun 4 years ago by the General Electric Flight Propulsion Division, has paid off in the development of a new suppressor for its CJ–805–23 aft-fan engine which will be used on the Convair 990.

Acoustical studies of its aft-fan engine showed the exhaust area to be the primary noise source, even under approach conditions. Design efforts were, therefore, centered on developing a suppressor for placement on the exhaust nozzle of the engine.

A complicating factor was the limited nozzle length of only 9 inches. General Electric engineers solved the problem by developing a resonator suppressor that has a broad frequency range which covers all power settings at approach when the noise problem is most severe.

The suppressor produces a measured 5-decibel reduction in sound at approach power and a 2-decibel reduction at takeoff power.

In spite of progress made in development of suppressors, additional significant reduction of noise at its source appears to be limited because of a prohibitive power loss to the engine.

A single sound suppressor for a jet engine costs $60,000. This means an additional investment of $240,000 by the carriers for each four-engine jet they purchase. As of December 1960, according to the Air Transport Association, there were 207 pure jets being operated by American carriers. This puts the total outlay by the U.S. airlines to date for the purchase of suppressors at the staggering total of $49,680,000, which, I would submit, is a fair contribution to noise reduction.

Now, I would like to just make one further observation, Mr. Chairman.

I assume that most of you are aware of the decibel as a measure of sound. It is a measure of pressure actually, but it is a logarithmic function, so that, for instance, if you double noise—let us say you have a noise level of 100, and you double it, you get 103 decibles.

So when you get a 5-decibel reduction, you are getting a very substantial reduction in noise, and even a 2-decibel reduction is a good one.

It is a logarithmic function and not just a straight linear.

Mr. WILLIAMS. I was going to ask you what percentage reduction that was. But the percentage really does not matter, does it?

That does not explain the situation.

Mr. PYLE. No. It would be a considerable percentage. For instance, from 103 to 100 is a 50-percent reduction in noise. But the decibel level is a logarithmic one. I have to confess, I quickly get out of my field in mathematics, so I will not go too far in this one.

Through judicious control of air traffic and the establishment of aircraft operating procedures, attempts have been made to move the noise away from the people.

In this connection, this Agency has published special regulations for Los Angeles and New York in which noise abatement is a major consideration.

These regulations designate specific altitudes below which aircraft will not be operated, prescribe approach altitudes at or above the instrument landing system glide slopes; specify preferential runways that will be used, weather permitting, that are the least noise sensitive; prescribe traffic patterns oriented for noise abatement purposes; and specify climb procedures to dissipate noise as rapidly as possible.

Of course, the purpose there, Mr. Chairman, is, frankly, to get the aircraft away from the area at which they are disturbing the population, climb out over water, approach over less populated areas, and so forth.

The extension of runways at both Los Angeles and Idlewild Airports have helped, since these runways can be used even in tailwinds up to 10 knots to concentrate takeoff noise over water areas; specifically in Los Angeles the west takeoff is used wherever possible.

These measures have practical limitations due to the flight characteristics of aircraft, orientation of runways, and requirements of air safety.

Aircraft traffic patterns have been altered wherever possible to aline approach and departure courses over water, uninhabited or thinly populated areas. We have developed a preferential runway system which concentrates incoming and outgoing traffic on runways which offer the least possible sound annoyance.

I would like to just interject at this point, Mr. Chairman, a brief comment about another device which we have just selected which is the visual glide slope. I have some pictures here that perhaps Colonel Williams would show to you that would illustrate this.

I believe you, Mr. Chairman, are familiar with this, but perhaps some of the other members are not.

This is a device which, in effect, creates a visual or by visual means a glide angle for helping the pilot approach the airport.

In addition to very definite safety factors involved in overwater approaches, for instance, it permits the pilot to know that he is on the proper glide slope in good weather and at runways at which there is not an ILS on the particular runway he is using.

Now, the device was perfected in England, and we brought it over and tested it at Atlantic City under all conditions. It is a rather simple and ingenious concept. There are two black boxes 1,000 feet apart.

If you see red in both black boxes, which are alongside the runway as you approach, you are too low. If you see white in both black boxes, you are too high.

If you see red on the front one and white on the back one, you are on the proper glide slope, which is plus or minus 3°, roughly.

This can be seen as far as 5 miles out, even in hazy weather, unless you are operating on instruments, even in bright sunlight, and it is a very definite assist to the pilot. It has a very definite part in noise abatement.

We think we are going to install about 40 of these initially, to see if they work, particularly at noise-sensitive airport areas, Idlewild, Chicago, O'Hare, Los Angeles, being candidates for these.

I think we are going to find that they are very helpful, giving the pilot some additional help in establishing a proper glide angle and keeping him up just as long as he can until he has to start down into the runway.

Mr. WILLIAMS. The purpose of this is to keep him from dragging in?

Mr. PYLE. That is correct, sir.

Unfortunately, particularly in the early days of the jets, the pilots felt that a flat approach with power and flaps settings dirty, as we call it, was the best way to get the airplane in; and, of course, this meant they were dragging the roofs of the housetops.

Now, this, by virtue of additional training procedures, working with us, working with the pilot group, educational programs, this procedure is no longer followed, and this visual glide slope is an additional assist to the pilot to keep him up.

That is the purpose of it.

We are, however, limited in how far we can go in prescribing altitudes, climb and glide angles, speeds, and so forth, for purposes of noise abatement due to overriding safety considerations.

And I am sure I do not have to emphasize the importance of safety in every phase of air carrier or aircraft operations, not only for the passengers and the crew, but for the people underneath on the ground.

In spite of these limitations, this Agency is in process of issuing a national rule setting forth pattern altitudes, approach, and takeoff procedures, requiring pilots to comply with preferential runway systems unless safety considerations are overriding.

This rule will be in effect at all large airports and will negate the requirement for special regulations similar to those applying at Los Angeles and New York.

In other words, what we are doing, Mr. Chairman, is to make the type of rule which we made for Los Angeles and New York a national one with additional special regulations which would be invoked for the local communities and consistent with the national rule which would take into consideration their preferential runway system and other factors which are peculiar to the local community.

So it is a national rule with local modification, depending on local circumstances.

Recognizing the inherent limitations in solving the problem by reduction of noise at its source and the effort to keep the noise away from the people, progress has been made with respect to keeping people away from the noise. The Federal Aviation Agency has published a "Noise Abatement Planning Guide" to provide technical guidance to Federal agencies, airport authorities, local planning and zoning commissions, and other organizations concerned with aircraft noise.

Mr. Chairman, I have a few copies of this. I would like to submit one for the record, if it is appropriate.

Mr. WILLIAMS. It will be received.

(The document referred to follows:)

FEDERAL AVIATION AGENCY—AIRCRAFT NOISE ABATEMENT PLANNING SERIES, ITEM NO. 3, SEPTEMBER 2, 1960

(Airport Planning Branch, Airports Division, Bureau of Facilities and Materiel, Washington, D.C.)

INTRODUCTION

This aircraft noise abatement planning guide has been prepared to provide technical guidance to Federal agencies, airport authorities, local planning and zoning commissions, community organizations and others concerned with aircraft noise, particularly at airport locations which have or expect to have turbojet service.

It is incumbent upon all governmental agencies to take such steps as they can to prevent urban development from encroaching on the airport, particularly in those areas which lie under the takeoff and landing paths of dominent jet runways. This is necessary, not only to protect the enormous investment of public funds that has been made in the development of our major airports but for the well-being and protection of persons and property in the airport environment.

I fully recognize that the guidance material outlined herein will require modification for adoption to given situations. Each airport will require individual study to determine how best to solve its particular noise annoyance problem. However, much can be accomplished if there is a sincere desire on the part of airport authorities, the aviation industry, and the community to work together and undertake all appropriate measures to arrive at a mutually satisfactory solution to this troublesome problem. I wish to assure all concerned that the Federal Aviation Agency will continue to do its part in this effort.

E. R. QUESADA,
Administrator.

Subject: Aircraft noise abatement.

PURPOSE

To provide technical guidance and enlist the participation of appropriate Federal agencies, airport authorities, and local planning agencies in a program to discourage residential development and the erection of public build-

ings and places of public assembly in areas contiguous to public airports and consequently, subject to high aircraft noise levels, particularly under the approach and departure paths of dominant runways; also to discuss certain other aspects of noise and noise alleviation.

APPLICATION

This planning guide has been prepared on the basis of data relating to the noise characteristics of the Boeing 707–120 aircraft (equipped with J–57 engines) and should be applied only at those airports accommodating or expected to accommodate this or similar types of aircraft. (NOTE.—Similar types of aircraft would include the Boeing 707 equipped with J–75 engines or the DC–8.)

The diagrams on pages 11 and 12 should be applied only to those runways being used or expected to be used predominantly by the type aircraft noted above, and to the runway length required for this type equipment—not necessarily the existing runway length. On bidirectional runways, both ends should be treated similarly. On unidirectional runways, only the areas under the takeoff path need be considered for full noise control; however, the ends of runways from which the aircraft starts its operational path should be controlled against takeoff noise, as indicated in the diagram at the top of page 11.

Each airport accommodating the type of equipment in question should receive individual study to ascertain (1) the present and future numbers of schedules per day; (2) the frequency of such schedules and the time of day, i.e., daylight versus night, before or after 11 p.m., etc. Any existing or proposed flight procedures peculiar to the airport should be carefully analyzed to determine the possibility of changes in the configuration of the airport. Also, the areas described on pages 11 and 12 will vary with the terrain and should be expanded or reduced to conform to the flight path of the aircraft above the elevation of the ground. Careful analysis of these factors should preclude the application of this guide unnecessarily.

DISCUSSION

1. *Noise disturbances.*—With the advent of civil turbojet aircraft operations, there has been a substantial increase in the number of complaints from persons in the airport environment as well as adverse community reaction to turbojet noise at a number of major airports. The Federal Aviation Agency recognizes its responsibility in regard to the aircraft noise problem and is authorized by law to prescribe certain rules and regulations in the field of air traffic control and to provide technical advice designed to relieve the aircraft noise problem. This authority is vested in the Federal Aviation Agency by the Federal Aviation Act of 1958.

Also, in order that the noise problem may not be a serious impediment to the continued "development of civil aeronautics and air commerce in the United States," and for the welfare of communities, it is incumbent upon all governmental agencies to take such steps as they can to prevent urban development from encroaching on the airport, and particularly in those areas which lie under the takeoff and landing paths of dominant jet runways. If residential developments are permitted to spread within these areas or to develop in close proximity to operational areas of the airport, there will be new quotas in addition to those already complaining of noise disturbances, which, by united action, can further aggravate the problems attendant to airport management and thus impede the progress of air commerce in general. To protect the Government's investment in public airports and for the protection of persons and property on the ground, it is vital that all reasonable measures be taken to encourage the use of land in the vicinity of airports in a manner compatible with the noise levels which may be expected due to jet aircraft operations.

2. *Noise levels.*—The technical features of noise are extremely complex and not fully understood by the man on the street. It seems sufficient to cover in this guide the less technical facts about noise, its effects upon land use near airports and some of the protective measures required to reduce the noise to reasonable levels.

By definition, noise is unwanted sound. Sounds are byproducts of mechanized operations and aircraft noise, almost unavoidable, a byproduct of propulsion. To understand the impact of noise on a community or neighborhood development, it is necessary to consider (1) the source of the noise, (2) the transmission path by which noise reaches the hearers, and (3) the receiver (which may be a single individual or an entire neighborhood).

Turbojet aircraft generate a high level of noise disturbance due to (1) the mechanical and operational characteristics of the engine (acoustic energy) and (2) the distribution of this acoustic power over a wide range of frequencies. The characteristic whine of a jet engine in "idle" position is in the high frequency region; at takeoff, in the low frequency, the "roar" becomes the dominant noise.

The common unit for measuring the relative intensity of sound (sound pressure level) is the decibel (db). The range of noise levels discernible to the normal person is from 0 to 130 decibels. The ordinarily conversational speech level is about 60 decibels greater than the lowest level of sound that is just barely audible; the average busy street is also about 60 decibels and very loud noises (noisy factory, loud street noises) fall in the 90 to 100 decibel level.

In considering jet noise levels, it is necessary to know whether the measurement is an overall sound pressure level composed of all frequencies within the wide frequency range or the level at a given frequency. It is also necessary to know the distance from the source and the direction from the source at which measurements are taken.

In regard to the transmission (propagation) path, distance is the most valuable tool in noise attenuation. Sound from a simple source in free space diminishes according to the inverse-distance law. For each doubling of distance, the sound pressure level is decreased by approximately 6 decibels. For example, if the overall sound pressure level 1,000 feet from an aircraft at takeoff power is 110 decibels, at 2,000 feet it will be 104; at 4,000 feet 98; and at 8,000 feet it will be 92 decibels.

Sound is reduced by almost everything in its path. Factors which influence noise attenuation in addition to distance are:

(*a*) Sound absorption in the air and scattering of noise due to temperature changes and turbulence. If the air temperature varies, sound waves will bend in the direction away from higher temperatures and toward the lower temperatures, i.e., on a hot summer day, sound waves bend away from the ground. Sound also will bend away from areas of high turbulence and toward areas of lower wind velocity.

(*b*) The presence of obstacles such as buildings, baffles, walls, and densely wooded areas.

(*c*) The physical characteristics of the terrain (topography).

Noise from a jet engine does not radiate at equal levels in all directions and the overall sound pressure level can vary as much as 25 decibels at various points in the same radius from the aircraft. It is possible, therefore, to achieve a considerable reduction in the noise level by altering the direction of the source and the receiver. The orientation of an airport runway may prove to be an important consideration in reducing noise in an adjacent community or neighborhood.

The more intense the sound, or higher the decibel level, the more likely it is to produce annoyance. Also, as a rule, high frequency or high pitched noise is more annoying than a low pitched noise of the same decibel level. Because the turbojet noise is in the higher frequency range, it will be more disturbing to a person than noise caused by piston engine aircraft of the same intensity. For example, a turbojet engine at an 80-decibel level will sound as loud to the average person as a piston engine operating at a 97-decibel level.

3. *Noise under approach and departure paths.*—Although the aircraft noise problem may encompass the entire area bordering the airport, the most troublesome areas are those which lie immediately under the takeoff and landing paths of jet runways; therefore, to the extent possible, the use of these land areas should be confined to nonresidential development or to land uses such as industrial, commercial, agricultural, recreational, or public parks which are not subject to high population concentrations.

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In connection with a public opinion poll survey on annoyance by aircraft noise, 80 percent of those who complained of aircraft noise reported some fear associated with aircraft—either fear of the aircraft crashing into their homes or fear and unwillingness to fly themselves. Such emotional associations should not be disregarded in any program of aircraft noise abatement.

Experience has shown that penalties are attached to the production of too much annoyance for too many people whose concerted reaction has resulted in the curtailment of aviation activity at civil as well as military installations. These penalties have resulted in the closing of runways, the filing of damage claims and at some military installations, the curtailment of flight training.

In the following table, the incidence of complaints by residents about aircraft noise is tabulated against the intensity of the noise to which these people were subjected:

Annoyance to residents from aircraft [1]

Aircraft sampled noise level decibels	Degree of annoyance, percent		
	None	Moderate	Great
50 to 60	63	31	6
61 to 66	42	40	18
67 to 72	33	36	31
73 to 78	15	37	48
79	12	26	62

[1] From "Effects of Noise on Behavior," Donald E. Broadbent in "Handbook of Noise Control," Harris.

4. *Community reaction to noise.*—A number of studies have been made to determine the factors which influence complaint behavior of typical communities. These studies have included communities located near military installations as well as those located in the vicinity of civil airports. In making these studies in connection with military airbases, the following factors were considered and evaluated.

(1) The characteristics of all noise sources and the period in which they occurred.

(2) The propagation of noise from the source.

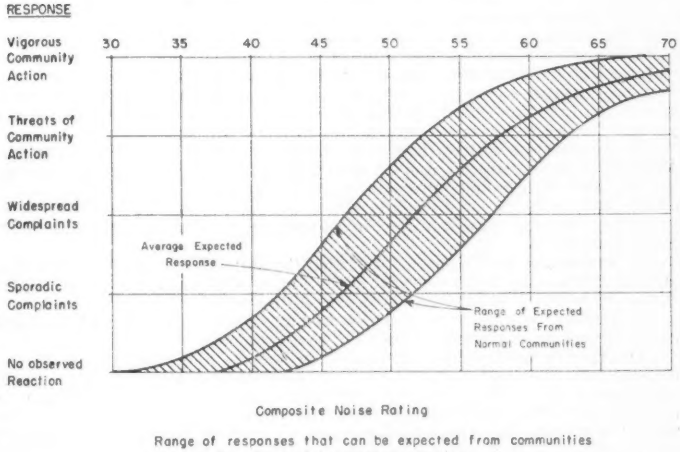
(3) The response of people to the noise with correction factors for background noise, previous exposure, and state of public relations between airport and community.

(4) Development of yardstick or measure on which community response can be predicted. (This yardstick which has been developed as a guide for use in connection with planning of military airbases so as to obtain a harmonious relationship between an airbase and neighboring communities would have the same general application to the tolerance of noise that a community would have that was located in the vicinity of a civil jet airport.) This predicted relationship between the composite noise rating and community response is indicated in the following chart (p. 6).

Based on the studies that have been conducted, it appears desirable whenever possible to restrict those areas lying under the runway approach and takeoff paths from residential development to a level that will not exceed widespread complaints." This composite noise rating level (as shown on the chart) has a range from approximately midpoint between the 45 and 50 decibels to a midpoint between the 55 and 60 decibels. To do so, however, might impose other hardships on land uses sufficiently severe to offset the advantages of reducing noise complaints. It should be recognized, therefore, that no single solution to the aircraft noise exists at the present time.

In many locations, it will not be possible to conform to this upper limit beyond which an average neighborhood development will not tolerate the noise disturbance and the application of other corrective measures to control or reduce the noise to acceptable levels will be required. Such measures relate to:

RELATION BETWEEN COMMUNITY RESPONSE AND COMPOSITE NOISE RATING *



Range of responses that can be expected from communities exposed to noises of increasing severity.

Center curve indicates average response.

* From "Aircraft Noise Disturbances" contained in "Air Base Master Planning Manual, AFM 86-6, 10 February 1959" - Department of the Air Force.

(*a*) Noise suppression at the source. This involves improved suppressors on the engine and proper recognition of the problem in the basic design of the engine.

(*b*) The development of operational techniques and the establishment of preferential runway use where takeoff and landings can be made over undeveloped land.

(*c*) The initiation of a public educational program to provide all residents of the airport environment with a better understanding of the noise problem; also, a sincere desire on the part of the airport authority and the troubled community to work together and undertake all appropriate measures within the limits of safety and efficiency so that a mutually satisfactory solution to the noise problem may be achieved.

5. *Development of noise contours.*—An examination of the noise levels that can be expected under the runway approach and departure paths due to normal takeoffs and landings by jet aircraft will define the area that should reasonably be excluded from residential use.

Since noise is such a variable and subjective factor, it is extremely difficult, even on the basis of all of the studies that have been made to date, to determine a specific or fixed annoyance level on which to establish reasonable restrictions. A good example of this is in the New York area where the restrictions imposed by the Port of New York Authority have been challenged by the airline operators.

In September 1959, this authority established a minimum permissible altitude of 1,200 feet which a jet flight had to obtain before reaching a densely populated area. Inasmuch as it proved difficult to make reliable measuremeuts of aircraft altitude, particularly after dark, the port authority determined upon a new noise level measurement for jet takeoffs, namely, that a ceiling of 112 perceived noise level in decibels (PNdb)[1] as measured on the ground in the communities under flight paths would not be exceeded. This "noise control criteria" which has been established at the New York International Airport is an effort to reach a reasonable compromise in resolving the conflict of interest between aircraft operators and property owners presently residing in or planning to locate in the approach and takeoff paths of jet airports.

6. *Recommended measures to protect approach and departure areas against encroachment by residential development and places of public assembly.*—In view of the foregoing factors and after giving full consideration to available data on the aircraft noise problem, the Federal Aviation Agency considers it appropriate to take the following measures to (1) promote aviation safety and (2) provide for the protection of persons and property on the ground:

(*a*) Provide the Federal Housing Administration, Department of Defense, Veterans' Administration, and other appropriate agencies with full information on the aircraft noise problem in areas contiguous to public airports to enable the agencies concerned to determine the policy to be followed in granting mortgage loans on dwelling units that will be subject to high aircraft noise levels.

(*b*) Encourage the Department of Health, Education, and Welfare to take such action as may be proper within the limits of its authority to discourage the construction of schools and hospitals falling within the defined area.

(*c*) Encourage airport authorities to buy or obtain additional land and avigation easements including the right to cause noise.

(*d*) Bring to the attention of airport authorities and planning and zoning commissions the need for a review of the zoning powers of the political subdivisions in which the airport and adjacent areas are located to evaluate the potential of existing zoning laws. Recommend the exercise of existing zoning powers to the extent legally possible to prevent housing developments and places of public assembly from encroachment on the airport, particularly in the approach and departure areas of dominant runways, as described in this planning guide. In those cases where existing zoning powers are found to be deficient, recommend that steps be taken to obtain legislation to provide zoning powers adequate to prevent, to the extent legally possible, such encroachments on the airport.

The airport areas as defined on the charts (pp. 11 and 12) may appear to be an oversimplification of a complex problem and more restrictive than is required, considering the large land areas that are involved. However, it should be remembered that this restriction only applies to subdivision developments and to places of public assembly—schools, churches, hospitals, stadiums, etc., and that a large

[1] PNdb is defined as the measurement of sound from a subjective standpoint, rather than ordinary pressure level. The octave bands of the source are analyzed indivodually and their effects on the receiver measured, combined, and rated in terms of "perceived noise" decibels. For example, a PNdb of 112 is the equovalent of a sound pressure level of 100 decibels.

portion of these areas can be utilized for agricultural, recreational, industrial, or other beneficial land uses. There are many low-density industrial activities in which noise-deadening construction can be employed to provide a satisfactory environment for various types of industries. These industries might not only be appropriate in the environs of an airport but they would also serve a dual function of providing a "buffer" between the community and the aircraft noise annoyance source.

7. *Other alleviation measures.*—The Federal Aviation Agency will continue its aggressive program to alleviate this problem to the maximum extent possible by—

(*a*) Instituting and requiring compliance with preferential runway use programs and antinoise traffic patterns at all airport locations where the application of an aircraft antinoise traffic pattern and preferential runway use program is indicated.

(*b*) Giving positive consideration to aircraft noise factors in the orientation of runways at public airports developed under the Federal-aid airport program and grant funds for runway construction and acquisition of property interests to abate the aircraft noise problem.

(*c*) Taking appropriate measures to assure a "direct reduction of the aircraft noise itself."

(*d*) Working closely with the National Aircraft Noise Abatement Council to obtain an expeditious and equitable solution to the noise problem.

(*e*) Continue its research on the aircraft noise problem and render such technical advice to public agencies and interested organizations as may be possible in a concerted national aircraft noise abatement program.

CONCLUSION

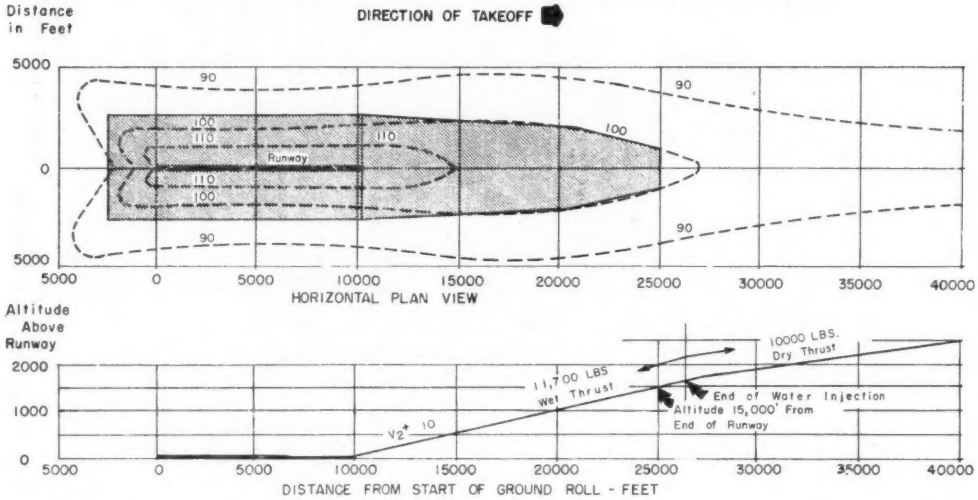
The adoption of this approach by all Federal agencies acting within their respective authorities and the adoption of appropriate comprehensive zoning ordinances by planning and zoning commissions together with a supporting effort by all segments of the aviation industry, will do much to achieve prompt and effective results in reducing aircraft noise annoyance. The most critical areas are those which fall under the runway approach and departure paths. Measures must be taken to discourage and prohibit the use of these lands for residential purposes and for the establishment of schools, hospitals, and places of public assembly as such land uses in these areas are incompatible with the use of the airport by jet aircraft.

It is recognized that the guidance material outlined herein will require modification for adoption to given situations. Operational conditions, developments which have already taken place and economic considerations will require, in most instances, that a compromise be worked out between desired land use control and that which is attainable. The size of the areas to be designated for land use control will vary, according to the type of aircraft, frequency of operations, operational procedures employed, and existing land uses; also, the community's experience and tolerance to aircraft noise will have a bearing on the degree of reaction that may be expected. Each airport situation is different and each will require individual study in order to determine how each airport can best solve its particular noise annoyance problem. It should also be recognized that the restricted zone depicted in the shaded areas on pages 11 and 12 will provide but a partial solution to the noise problem. This zone merely defines the most troublesome areas. Patience and reasonable tolerance to aircraft noise will be required of persons who reside or expect to reside in the nearby nonshaded area. Consequently, the establishment of a friendly and cooperative relationship between the airport and persons living in the airport environment is indicated.

It is also recognized that there is need for more controlled studies in connection with the effect of airport noise on neighboring communities. When such studies are made and the results made available, the criteria as outlined herein will be modified or revised if such revision is indicated.

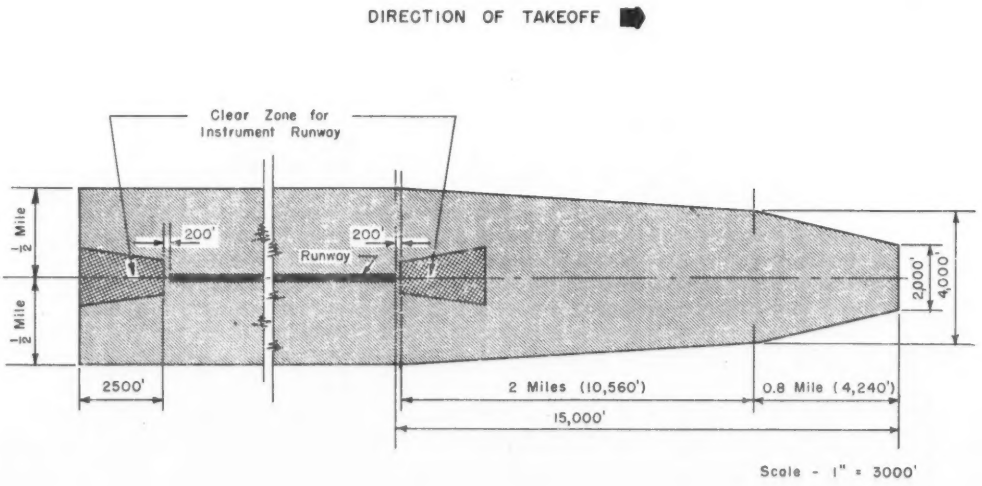
SOUND PRESSURE LEVEL CONTOURS*

Model 707-120, 247,500 lbs. Gross Weight Takeoff, Water Injection For/27 Sec.
Std. Day-SPL-DB-RE 0.0002 DYNES/CM^2



* From "Sound Levels - Model 707-120 Jet Transport"
Transport Division, Boeing Airplane Company - August 1958

Area Recommended for Nonresidential Development and the Exclusion of Places of Public Assembly.



AREA RECOMMENDED FOR NONRESIDENTIAL DEVELOPMENT AND THE EXCLUSION OF PLACES OF PUBLIC ASSEMBLY.

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Mr. PYLE. In furtherance of these efforts the Federal Housing Administration has adopted a policy to not approve loan insurance in the noise sensitive areas defined in the Federal Aviation Agency planning criteria.

You will note, I think, as part of the exhibit, that there are specific recommendations made as to the use of areas around airports for resident zoning.

This Federal Housing Administration policy recognizes the fact that residential development and encroachment in noise sensitive areas is not in the best interest of prospective developers and buyers.

Additional local community effort to insure proper zoning and more effective land usage is becoming a noticeable trend. It needs to be remembered, however, that in this area of dealing with the people and their property rights we have to balance the equities of the public airport, the adjacent property owners, the air carriers, and the traveling public.

While the above are the current programs on the noise problem, we believe it is important to point out that certain limitations and conflicting interests are imposed on this effort. As you know, the airports

are operated by local authorities in consonance with local air commerce requirements.

Our experience has shown quite clearly that many times noise problems are aggravated by a lack of understanding as to how aircraft operate.

Many people understandably become alarmed when they see and hear aircraft land or takeoff, if they are not familiar with the techniques and procedures involved. Any time fear is generated, resentment and stress usually follow. Thus, it is that we are working with local, State, and other groups to help educate the general public about basic fundamentals of aviation that, once understood, will help remove some of the fear.

In that connection, Mr. Chairman, there was a very interesting exercise that took place out in San Francisco where we had through some help some noise measurements taken on a particular day at the end of runway 1 right, in San Francisco which is right adjacent to the community of Millbrae. This has been a very troublesome area for this community, because they get the blast of the jet taking off on runway 1 right, just directed right at them.

So they had several measurements taken. At 9:08 there was a jet takeoff from runway 1 right, 89 decibels. At 9:14 there was a jet takeoff from 1 right, 90 decibels. At 9:23, a jet holding and takeoff from 1 right, 84 to 85 decibels. At 9:25 a.m., railway train whistle, 91 decibels. At 9:35, railway train passing, no whistle, 98 decibels. At 9:44, a helicopter flying over at 94 decibels.

So I think this points out that, among other things, there is the factor of a new kind of noise which is stirring up a feeling of fear, frankly.

It is a new experience and they do not understand it, and it has perhaps a bothersome whine to it that the other noises do not have that perhaps the people have become accustomed to.

In any event, during 1960, the month of February, there were 344 complaints that were received in San Francisco, and in 1961 there were only 9, the same month.

So there is a tremendous reduction.

Now, I think it is only fair to point out that in addition to the educational effort, by our working with the carriers there was worked out a program to remove all training activities from San Francisco.

This reduced the number of flights that were taking off from San Francisco. We had the educational program that I referred to, and there was also a local committee that was set up that was very active, both a technical committee of the operators, the pilots and the air carriers, and the airport management, and also a local public relations committee, so to speak.

These are the kind of efforts that we have all got to work on.

Mr. FRIEDEL (presiding). Mr. Pyle, you said that quite a few flights took off from the San Francisco area.

Where did they transfer them to?

Mr. PYLE. Some flights went to Stockton where there was an airport at which they could practice landings. We put in an ILS down there which was programed for Stockton, but put in ahead of schedule, so that they could accomplish their instrument landing system training at Stockton.

This took a lot of the training flights out of the San Francisco Municipal Airport.

We also were able to work out with the Air Force the interim use of an air force base, and I believe it was Beale Air Force Base which is up toward Sacramento.

Mr. FRIEDEL. You did not take out any passenger lines?

Mr. PYLE. No, sir.

These were strictly training flights, Mr. Friedel, and Colonel Williams points out that Fresno and Chino were also used for this, to divert, spread, and disperse the training flights to other areas.

This does sometimes present a problem because we just move the problem to Stockton, but the community and the airport have been very cooperative and have worked it out so that we can do this under certain regulations which the community has set, criteria under which these training flights are conducted.

The aviation industry, deeply aware of its responsibilities in this matter, has formed an independent organization known as the National Aircraft Noise Abatement Council to coordinate an industry-wide program, and to explore in cooperation with Government agencies every possible approach which might help reduce noise due to aircraft operations in airport terminal areas.

Typically, governmentwise, we have got NANAC as the name to which we refer to this committee.

NANAC's three founding members include the Air Transport Association, representing the airlines, the Aerospace Industries Association, representing the manufacturers, and the Air Line Pilots Association, representing the pilots.

The members have pledged themselves to apply every safe flight operations procedure and technique developed by NANAC, and to follow every avenue of research into noise-reduction methods and devices suggested by the council in the hope of realizing practicable and acceptable answers to this difficult and complex problem.

Ground noise has been reduced by using jet silencing screens and ground jet noise suppressors at maintenance and overhaul bases where prolonged engine tests are necessary. Portable mufflers, blase fences, and other devices are also being used to deaden the sound.

I have not heard one of these in operation, Mr. Chairman, but I understand that this is a very effective device. It gives you about a 65-percent reduction 500 feet from the engine, and it also directs the noise up, the blast up, so that it reduces to those living around the airport, reduces the impact of, for instance, when the mechanics get out and run them at 100-percent thrust, to trim the fuel control mechanism.

He can do it and not disturb the people living around the airport.

The National Aeronautics and Space Administration has made substantial contributions in the field of research concerning engine design and the reduction of noise at its source. The products of this effort have been made available to the engine manufacturers and it is gratifying to note that reduction of noise is now one of the more important design criteria in the development of future aircraft engines. The National Aeronautics and Space Administration is continuing with research in this area.

This Agency is finalizing arrangements with the National Aeronautics and Space Administration in supporting a contractual study which is designed to refine the methods of rating the subjective noisiness of various sounds. Special effort will be made in estimating probable effects of shifts in the location on the frequency scale of pure tone components in broadband noise, such as from the turbofan engine. With this knowledge it may be possible to design engines so that sounds they generate would be the least objectionable.

An additional step that has been taken to reduce aircraft noise relates to flight training activities. Airlines have cooperated in eliminating jet training at noise-sensitive airports, thereby causing a significant decline in the total number of flight operations in noise-sensitive areas. Of course, an outstanding example of this was the effort made by all the carriers on a voluntary basis to move training out of San Francisco.

This action is especially significant when it is realized that the air carrier training costs are generally increased because of the necessary rescheduling of equipment and extending of crew training time.

In conclusion, while noise abatement is a serious problem today, and will continue to be a serious problem in the future, unless some spectacular breakthrough in noise suppression at the source is achieved, we feel that we are making reasonable progress within the limitations of existing technology and through the courses of action which have been outlined.

Increased jet operations in critical areas and the introduction of jet service at more airports will amplify the problem to some degree.

In all candor, the future outlook has both bleak and promising aspects. There are no immediate and dramatic means of reducing drastically the sounds that accompany essential air transportation. With advanced planning and the concerted effort and cooperation of the industry, the airport operators and the affected communities, we believe that the noise nuisance can be held to a level commensurate with progress in air transportation.

This Agency and other Government agencies, together with local officials and authorities, aircraft and engine manufacturers, aircraft operators, and pilots will continue their efforts toward acceptable solutions by emphasizing the importance of the noise problems, and striving for solutions.

Now, Mr. Chairman, if there is any further information that we can develop for you by questions and answers, we are at your disposal.

Mr. WILLIAMS. Mr. Collier?

Mr. COLLIER. First, Mr. Chairman, I want to compliment Mr. Pyle on a very fine statement.

It is unfortunate, I believe, that the public so often does not know the daily efforts that are put into this problem of noise abatement.

But I would like to depart, if I may, from the specifics of your statement and, keeping within the general topic, get into another area just for a moment.

My congressional district is located almost, I suppose you would say, as a triangular plot with O'Hare Field at the north, Midway Airport at the south point, and Miggs Field at the north.

This naturally creates a great necessity for helicopter service.

As you know, O'Hare Field is handling an increasing amount of jet service, but the big problem is not the noise from the jet craft, but, rather, the helicopter, which I presume is going to increase over the months and the years ahead.

It has gotten to be quite a serious problem, at least as far as the people in my district are concerned. I would like to know, in general, what is being done in that direction, because I have asked our chairman if we might have perhaps a special hearing just on this matter of helicopter service, which certainly must not be unique to any particular area, but is probably a problem in other areas where there is ferrying service with air travel.

Mr. PYLE. Mr. Collier, your point is a very good one. As a matter of fact, we have given a lot of attention to this specific problem in the Chicago area of helicopter operations.

Now, one of the problems we are faced with, frankly, in Chicago helicopter airways is the fact that we must prescribe routes, so that because of their having but one engine on the S–58, they must fly over routes in which they can, in case of engine failure, descend and effect a safe landing, maybe along a freeway or in a park area or some such thing. So these routes are fairly well limited by the necessity for safety of operation of the helicopter.

In other words, we would not want to put it over an area where the man or the pilot could not descend, go into autorotation and descend safely. He might go into a house, for instance.

So with the present vehicle we have very specific problems which are created by the inadequacy, let us say, of the vehicle.

Shortly, we will have helicopters with twin-engine capability or turbine helicopters with twin-engine capability, one of which will keep the airplane flying, the aircraft flying.

To this extent, therefore, we can diversify the routes and not be driving back and forth across one area all the time, as we have to now. So this offers some relief.

Further, it is my understanding that the turbine helicopter is probably quieter; its decibel rating is lower specifically.

Mr. COLLIER. Excuse me. This is a type of equipment that is not currently in use?

Mr. PYLE. No, sir.

Mr. COLLIER. But will be? Do you know about how soon, Mr. Pyle?

Mr. PYLE. I think the S–61 has been certificated and they are going to be brought into service. There may be one working in Los Angeles now.

It depends, of course, on the ability of the carrier to finance and procure this equipment, too. I am not familiar with their program in this regard, but this is an aircraft that is certificated and is shortly to be available depending on production capability of the various manufacturers.

Mr. COLLIER. Not to belabor this point, but is there a reasonable check kept of the helicopters taking the prescribed routes?

In other words, could you say how often you might have complaints where they leave the prescribed route and travel over areas that are not set up as the routes from the three airports that I mentioned, or from any other airport, for that matter?

Mr. PYLE. To be specific, Mr. Collier, if they deviate from their prescribed routes, they are in trouble, not only from the standpoint that they are not abiding by their very rigid specifications that we establish for them, and which they must follow, or they are in violation, point 1.

Point 2, they know we have radar and are looking for them, and if they deviate, we can catch them pretty quickly.

Mr. COLLIER. Just one other question.

In our own evaluation of this problem, are you convinced that this matter of, shall we call it nuisance, fear, and noise from the expanded helicopter service is getting all of the attention that it probably deserves in view of the increasing number of complaints that must be coming from, I presume, other areas, as well as from the Chicago area?

Mr. PYLE. I think I would have to answer you this way, Mr. Collier:

I am not sure because this is an area that, frankly, we have been so beleaguered by the problem of the jet aircraft that the helicopter problem may not have received perhaps all the attention that it should have.

I would like to look into this. We can report back to you on this.

Mr. COLLIER. Thank you very much, sir.

That is all I have.

Mr. WILLIAMS. Mr. Friedel?

Mr. FRIEDEL. Mr. Pyle, I want to commend you and the FAA for the wonderful job you are doing in trying to abate noise.

Mr. PYLE. Thank you, sir.

Mr. FRIEDEL. I was particularly interested when you said a lot of these communities came to the airports and they knew what they were in for when they moved there. I am wondering whether they have already provided the zoning laws down at Chantilly, because I want to brag about Friendship. We foresaw the future.

We have wonderful zoning laws, the city of Baltimore and the local communities around the airport. It is mostly commercial and nothing that is high can be built in the area and no homes can be built there.

I understand there are a lot of training flights at Friendship.

I want to know this:

Is any provision being made around Chantilly to do this, because if not, people will start moving out near the airport? Are you getting cooperation from the counties?

Mr. PYLE. Well, in the first place, Mr. Friedel, I would like to commend the city of Baltimore for the progressive steps they have taken in this connection.

I am afraid I am one of the offenders that goes up and uses that good airport for training flights to show the Members of Congress and others how, for instance, the ILS system works and other things.

Specifically, the answer to your question with respect to Chantilly and Dulles is "Yes." This is a description or a chart which shows roughly the 100 decibel level in the take-off of a 707–120.

This pattern, in other words, here will be that area which will be exposed to about 100 decibels noise level, plus or minus 1 or 2 decibels, this being the runway, the start of the runway, 10,000 feet out to 25,000 feet, roughly 2,000 feet on each side of the path.

Now, we have clear title to land roughly to this area at Chantilly.

We have a band 2,000 feet outside of all runways. So if there be exposure, it would be in this area.

Now, in addition, we are going to all the local communities, zoning and planning commissions in the counties of Loudoun and Fairfax, explaining the problem and enlisting their help.

So far as I can tell, they are acutely aware of this problem and are doing their best to come up with the adequate type of zoning protection such as has been done in Baltimore for light industry, nonresidential type of housing. But this is a ceaseless battle.

We have to keep after it and maybe we had better come up and get John Colona to give us a briefing, we were so successful.

Mr. FRIEDEL. I would say just keep some more flights for Friendship, that is all.

Mr. WILLIAMS. I was wondering how you were going to get Friendship into this discussion.

Mr. Devine?

Mr. DEVINE. Mr. Pyle, is the greatest problem in noise suppression the power loss with the use of mufflers?

Mr. PYLE. I think, Mr. Devine, there are two problems. In the first place, the jet engine, basically the noise is a result of the power that that engine is developing, because it is really the friction between the gases that are being exhausted, which provides the power for the engine; it is that friction between those gases and the ambient air surrounding it.

The moment you get turbulence, you get noise, when you are blowing out 15,000 or 18,000 pounds of thrust, as the modern engines are doing, and up to 20,000 in the JT–4, the J–75, the military type.

The second problem is that in order to regulate this flow in some way, this is all the suppressor, in effect, does, regulates the flow and reduces this turbulence to a degree, the moment you reduce the turbulence you are also, to the same extent, by friction of the gas as it goes out through the suppressor, reducing the power output.

I think my figures are correct. You suffer about 2 percent loss on takeoff thrust and about a 1 percent in cruise thrust by the use of the suppressor.

This makes a material difference on an aircraft that is going transcontinental, for instance, and then you have got added weight and expense.

Mr. DEVINE. I believe Labor Day a year ago we had hearings at Idlewild in connection with jet aircraft noises specifically.

Has your Agency found a reduction or an increase or about a normal range of complaints from that area? Has there been any improvement up there?

Mr. PYLE. Let me show you this. Perhaps we can talk from this chart here.

This is the Idlewild layout. I could be perhaps a little inaccurate or a little unfair in saying there has been a marked reduction since Labor Day, because, of course, the winter came along and the windows are closed.

Mr. DEVINE. It was a year ago that we had hearings, was it not?

Mr. PYLE. I have forgotten. Was it a year? I guess it was.

In any event, the summer season, of course, is the bad one when the windows are open, and I would say last summer is about the same as the summer before.

During the winter season there is no appreciable complaint factor except a few dedicated people who like to stir up troubles, and there are some in this area. They make a business of it.

But there are some factors.

Mr. DEVINE. Not only in this area?

Mr. PYLE. There are some factors that have served to improve the situation. This is runway 31 left. At the time that we were up there, runway 31 left started here on takeoffs to the northwest.

Now, the runway has been extended all the way down to here, so that the airplane can take off, climb, and be airborne considerably earlier or sooner, and thus turn and come out over the water, whereas before they had to come over Howard Beach.

Now, the other problem areas are approaches on runway 22 and the approaches on runway 4 right, which is coming in on the ILS system.

This is an area that is not too bad. We do not have too much trouble from there.

But we have done an awful lot of work and crew training procedures to the extent that I would say that the operation of the aircraft today is on a much better basis and they are following their procedures, staying above the glide slope, climbing out as fast as possible under certain standards that we worked out with the industry, and their adherence to these standards are much better.

I recall sitting near the window the day of that hearing and seeing the random manner in which these aircraft were being landed which was indicative to me, and in the early days of the jet we had some considerable distance to go in acquiring better adherence to proper operating techniques. This we have achieved.

Mr. DEVINE. I take it that the situation has been improved since a year ago?

Mr. PYLE. To some extent.

Mr. DEVINE. On the general noise-abatement problem?

Mr. PYLE. Yes, sir, but we still have a long way to go.

Mr. WILLIAMS. Could you show us on that map approximately where that accident occurred?

Mr. COLLIER. Over Staten Island.

Mr. PYLE. The Staten Island accident?

Mr. WILLIAMS. [Indicating.] Would that be off?

Mr. PYLE. Way off. This is Floyd Bennett and this is Idlewild. It would be down here.

Mr. WILLIAMS. I was thinking it was in the pattern.

Mr. PYLE. No.

He was approximately 17 miles, I think, from Idlewild. When the DC–8 went in, he was closer.

Mr. WILLIAMS. Mr. Macdonald?

Mr. MACDONALD. I have no questions.

Mr. WILLIAMS. The committee is very happy to have sitting in with us this morning one of our colleagues on the full committee who has just been assigned to the full committee and, as I understand it, has not been assigned to a subcommittee yet. Is that right?

Mr. DOMINICK. That is correct.

Mr. WILLIAMS. Mr. Dominick of Colorado.

Perhaps he has some questions he would like to ask.

Mr. DOMINICK. No.

I just want to express my appreciation to you for letting me sit in on this most interesting hearing and to express my appreciation to Mr. Pyle for a very excellent statement.

Mr. WILLIAMS. Mr. Pyle, it has been suggested that I propound certain questions to you regarding the actions of the Federal Aviation Agency in the promulgation of criteria. One of these questions is, What noise criteria has been established, if any, by the FAA for compliance by the air carriers?

Mr. PYLE. I think the problem that perhaps we should address ourselves to in connection with this comment is the question, Mr. Chairman, of: Do we have, let us say, an acceptable level of noise generated by aircraft, and the answer right at the moment is negative. We do not.

Now, the Port of New York Authority has come up with a so-called perceived noise decibel level of 112 decibels, beyond which it is unacceptable or untenable.

This is an interesting formula, and it has to do with certain weighting given to the distribution of noise frequencies.

We are not prepared to accept this as an adequate standard. One of the purposes of our contract with the NASA is to evaluate what is noise, what is untenable noise, what is satisfactory noise levels. Out of this may well grow a criterion, and what we do with it then we will have to decide as we come up with it, and whether it is practical to achieve such a criterion.

Mr. WILLIAMS. Your answer suggests another question on my part.

Mr. PYLE. Yes, sir?

Mr. WILLIAMS. I believe that you are working in conjunction with other Government agencies on this problem; is that correct?

Mr. PYLE. This is correct, sir.

Mr. WILLIAMS. That you have contracts with NASA who, in turn, has contracts, I presume, with private engineering firms of one type or another to do work in this field. Is that a proper assumption?

Mr. PYLE. I would put it this way——

Mr. WILLIAMS. Or is all of the work being done by the Government agency itself?

Mr. PYLE. There are several aspects to it. In the first place, the contract that we have in mind working out with the NASA would be with private industry, as I understand it. This would be a jointly financed contract between ourselves and the NASA.

Now, the NASA has done a lot of work in house, so to speak. In other words, with their own scientists and engineers and technicians at their own laboratories.

Part of the work on suppressors was a direct outgrowth of this work on the part of NASA, and there was a tremendous contribution that was made.

Mr. Bates of NASA is here. George, do you have any other contracts with industry in the noise area other than the joint one?

Mr. BATES. Mr. Chairman, we do not have any with industry in noise at the present time. We have a few with a couple of universities for fundamental research on some of the criteria in noise.

The only one with industry at present is the one that Mr. Pyle spoke of which is a joint NASA-FAA undertaking.

Mr. WILLIAMS. I was going to ask:

Is the military doing any work in this field?

Mr. PYLE. Colonel Williams perhaps can answer that one, sir.

Colonel WILLIAMS. Sir, the military, I believe, were the first ones who tried to put a handle on the jet noise problem, as we all know.

They are looking to us to do some additional work, as Mr. Pyle has talked about, with NASA and FAA, and the military are looking further ahead now, for example, on the sonic boom noise problem which is becoming more and more of concern to them.

But they have been very interested in this. But again, like us, they have found that it is so difficult to put a label and a handle on this—what annoys people—that they have taken the view that you try and get people away from the noise or keep the airplane away from the people, rather than actually set a design criteria for military engines.

They have not tried to do that.

Mr. COLLIER. Mr. Chairman?

Mr. WILLIAMS. Mr. Collier?

Mr. COLLIER. This raises a question in my mind. How much or what effect, if any, do atmospheric conditions have upon, or variations in atmospheric conditions have upon, this volume of noise?

Mr. PYLE. I think they have a great deal. One of the big problems that we have in this noise area that has a direct bearing on the answer to your question is:

Take O'Hare, the present ILS is runway 14 right. Now, if you have a strong west wind under an overcast maybe 1,000 feet, the airplane comes in, breaks out contact and then circles around below the overcast, and all it is doing is bouncing the noise up against the clouds and then down on the ground.

You really have a tremendous noise problem until that airplane gets on the ground, because he has to circle around and line up with runway 27, and he just drags right across north Chicago.

Now, we are trying to cure this by the installation of a runway, an ILS on runway 27, so that he can come in straight from the lake, set up his proper descent way out, and with reduced power glide right in, with some power, of course, but come right into the airport on a straight-in approach. This will reduce the noise problem tremendously.

These are the kinds of things that we have to work out in other communities, too, and we are doing this. We have put an additional ILS in at Idlewild, and there are other installations that I am sure will have to be required, maybe over and above our criteria for ILS's strictly for instrument flying, but also to assist in the noise problem by making straight-in approaches possible.

But, specifically, yes, atmospheric conditions do affect noise.

Vegetation is effective to an extent in reducing ground noise from engine runups.

We are planting a band, for instance, around Dulles of trees 1,000 feet thick, thanks to the cooperation of the State of Virginia, so that eventually, as they grow, it will provide a hedge to cut some of this noise from getting out into the community.

This is a very useful device.

Mr. MACDONALD. May I ask a question?

Mr. WILLIAMS. Mr. Macdonald?

Mr. MACDONALD. Colonel, I was very interested in the epitome of noise irritation—the sonic booms that shatter your windows.

I happen to live in a place where apparently there is a good deal of flying out of Otis Air Force Base and it is a source of great complaint.

I was wondering what progress, if any, has been made in the last year in trying to control that problem.

Colonel WILLIAMS. Sir, I am certainly glad that you did ask the question.

We have made a tremendous amount of progress in this area in limiting the altitude at which our supersonic aircraft are flying.

We have also worked in FAA with the military to develop operational techniques. For example, change of climb path angles, the maneuvering effect of an aircraft operating at supersonic speed, all can have a significant effect upon the overpressure created by a sonic boom.

We have got a test program envisioned between ourselves—the Air Force and NASA this summer—using B–58 aircraft, in which we are going to try and prove out some of our theoretical calculations as to how you minimize boom.

So we are very far down the road compared to what we have done in the past.

Mr. MACDONALD. Is the Air Force position still that no actual damage can be done to a house?

Colonel WILLIAMS. No, sir.

This is not their position on this. They have restricted supersonic operations, where at all possible, above 35,000 feet.

They have paid off claims.

They do recognize that sonic boom can cause damage, because it is merely a function of overpressure, and we know that in some instances it can break windows and plaster and the like.

Mr. MACDONALD. Would it amaze you to know that as recently as 4 or 5 months ago they said that a sonic boom could not crack a ceiling?

Colonel WILLIAMS. No, sir, it does not amaze me that long ago, because within that short period of time, since we ran some tests last fall, they changed the concept. I know exactly what you mean.

The Air Force for a long time would not pay such a claim as a result of sonic boom damage.

Mr. MACDONALD. They would not listen to it. They said it was impossible.

Colonel WILLIAMS. They will now, sir, I am sure.

Mr. MACDONALD. This is very nice of them because they must have been running those tests over my district in Massachusetts.

There were 10 or 12 booms with resulting damage and the Air Force would say: "No, it is impossible. This is just imagination." Everybody within a radius of 20 miles would hear a boom; there would be cracks and broken windows; and the Air Force would say it is impossible.

Colonel WILLIAMS. Sir, I believe you will find the Air Force's attitude is completely changed.

Mr. MACDONALD. I am glad they have recognized this fact.

Mr. PYLE. Mr. Macdonald, can I assure you the B–58 tests will not take place over the Eighth District. I would like to point out that the problem that we are involved with here in sonic boom is a really difficult one, because here we are thinking in terms of a supersonic transport.

It is a function, among other things, of lift, and the pressure that is generated by this.

Now, in the subsonic airplane, this lift, as the airplane passes over the ground, is transmitted almost in all directions. But when you go supersonic and you build a shock wave, that lift is concentrated on that shock wave. Therefore, the weight of the airplane basically is transmitted down the shock wave to the ground, and this is why you get damage to houses.

Now, this presents a real problem. How are we going to operate the supersonic aircraft?

I think the only possible way to do it is not to go supersonic until you get above 45,000 feet, for instance. These are parts of the problems we are trying to work out with NASA so we do not generate just a fantastic problem nationwide with the supersonic transport.

Mr. WILLIAMS. Mr. Pyle, another question that has been suggested to me, and I would think that the airlines would just as soon that this not be asked, but I am going to ask it anyway:

What mandatory FAA rules, if any, are currently in effect, or which might be contemplated, which would require airlines to load their aircraft in such a way as to cause the least amount of noise annoyance in noise-sensitive areas?

Mr. PYLE. Mr. Chairman, I think the only way I can answer that is, for instance, you take the New York rule, there are certain specific requirements, wind directions, under certain wind directions setting up preferential runway systems. Now, under certain conditions of temperature and wind, this would mean that if the aircraft took that runway, it would probably have to off-load.

But it is not mandatory because the pilot can say that for reasons of safety, he selects another runway. So that I think the only way I can say it is that right at the moment the preferential runway system is not mandatory to the extent that it would require off-loading.

Mr. WILLIAMS. In other words, the load factor is not taken into consideration with noise abatement in mind. There is no requirement; is that correct?

Noise abatement is not a consideration in determining load factor?

Mr. PYLE. I would want to qualify this to the extent, Mr. Chairman, that in many instances, and particularly at Los Angeles, the air carriers have voluntarily off-loaded. The point I wanted to make, though, is that it is not mandatory.

But they are acutely aware of their responsibility in this area, and are doing a tremendous amount on their own voluntarily.

But it is my feeling that until we can come up with adequate criteria as to what constitutes untenable noise, I just do not believe we are in the position to impose a hard-and-fast mandatory regulation. I do not think we can on an equitable basis.

Mr. WILLIAMS. Another question: What are the flight procedures developed by NANAC? That is something I am not familiar with. As I say, this question has been suggested.

Mr. PYLE. Yes.

Mr. Chairman, these procedures involve the optimum takeoff performance of the aircraft, and also, I think, they involve the proper approach as well, proper procedures for approach to minimize noise.

For example, in takeoff they specify the climb straight out to 2,000 feet, a climbing turn not before 2,000 feet, minimum angle and degree of bank to turn would be 500 feet and 20-degree bank.

Speeds are restricted to V–2 plus 10. In other words, this is the best speed at which the airplane will climb out. Quite often, and I am sure we all as pilots have done this, we add an extra 10 knots just to be safe, but it has been found by flight test procedures that if you maintain V–2, the takeoff speed, plus 10 knots, you have got an adequate margin of safety, and it produces a quicker climb out.

Now terminal area maneuvering speed, 200 knots limit. They set flap settings, power and thrust settings. We are also working on the possibility that there may be a lot of paydirt in climbing out at these prescribed procedures; as you come over a community that is a sensitive one, you reduce your power setting and drop your noise a little bit; and then as you pass the trouble area, you then put your power back on and climb on out, reduce your climb, for instance, your rate of climb from 1,000 to 500 feet a minute.

This one we are still working on and we want to be sure that we are not imposing an undue burden on the pilot or the carrier by pursuing this one. But I think it holds real promise.

Mr. WILLIAMS. But you do have that under consideration?

Mr. PYLE. Yes, sir.

Mr. WILLIAMS. And study.

Mr. PYLE. Yes, sir. I was just going to say, if you would like, we will be delighted to submit this for the record.

Mr. WILLIAMS. Fine.

Mr. PYLE. Copy of the noise abatement procedures.

Mr. WILLIAMS. I do not think we need to include it in the text of the hearings, but we will be glad to accept that for our files for reference purposes. I see it is rather technical and mostly tables giving operating procedures for various aircraft types.

Also, I think at this point I might suggest that we include by reference the report of this subcommittee last year following the hearings in Los Angeles and San Francisco.

(The report mentioned follows herewith:)

HOUSE OF REPRESENTATIVES, COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
JUNE 9, 1960

Mr. Moulder, from the Subcommittee on Transportation and Aeronautics, submitted the following report on subcommittee hearings in San Francisco and Los Angeles on aircraft noise abatement held April 20 and 21, 1960, pursuant to House Resolution 56, 86th Congress.

The Subcommittee on Transportation and Aeronautics continued its study of aircraft noise problems with public hearings in San Francisco April 20 and Los Angeles April 21. Testimony supplemented that taken on the same subject at New York International Airport, September 7, 1959.

Attending the hearings were representatives of various interested agencies including Mr. D. D. Thomas, Director of the FAA's Bureau of Air Traffic Management, accompanied by others from the FAA Washington office, and Gen. Jack R. Cram, president, National Aircraft Noise Abatement Council.

In each hearing, the subcommittee first heard complaints and suggestions of local residents, followed by reports from local authorities regarding abatement efforts. More than 50 witnesses were heard.

After hearing the scheduled witnesses, questions from the audience were directed to a panel representing the Federal Aviation Agency and airport operators to permit participants in the hearings to develop additional information for the subcommittee.

The stenographic reports of the hearings are being studied by the subcommittee, airport operators, the Federal Aviation Agency, airlines affected, and citizens groups. The record, setting out the complaints and suggestions of various groups in complete detail, as well as corrective measures taken or proposed, provides data for those working on the noise abatement problem, not only in the two areas but in other cities as well.

Witnesses told the subcommittee the noise problem became acute only with the advent of the jet transports and the testimony largely was directed to jet noise rather than aircraft noise in general, as was the situation in New York.

Members participating in the hearings were: At San Francisco, Messrs. Moulder, Brock, Derounian, and Younger. At Los Angeles, Messrs. Moulder, Brock, and Derounian.

SAN FRANCISCO HEARINGS

The situation at San Francisco apparently is complicated by the conflict of interest among affected communities and by problems of terrain. For instance, extension of one runway to take increased traffic, while alleviating noise conditions in certain areas, results in protests from communities over which the increased traffic passes.

Jet operations are increasing rapidly as new flights are added, thus aggravating the problems.

Twelve certificated carriers serve San Francisco, handling in excess of 12,000 passengers daily. The city and county of San Francisco have around $56 million invested in the airport and tenants an additional $25 million. The airport, with 12,000 employees, has an annual payroll of $75 million.

The subcommittee heard from officials and residents of the following cities: Millbrae, South San Francisco, San Bruno, and Burlingame, as well as San Mateo County.

The airport has four runways. Normally planes take off to the north and west and land from the east, providing a maximum of landings and takeoffs over water.

Takeoffs to the north in bad weather are complicated by a potential conflict with the Oakland Airport traffic pattern.

Four possible means of alleviating noise were proposed as follows:

1. Development of more effective sound suppressors.
2. Extension of runway 28–L toward the bay to permit jet takeoffs further away from residential areas and to enable aircraft to maintain higher altitudes over residential districts, or to turn north before reaching the residence area.
3. Removal of training flights to outlying airports.
4. Better community planning in the way of residential zoning restrictions in the approach zones.

The subcommittee was asked to urge the National Aeronautics and Space Administration to accelerate research on noise suppression.

Extension of the runways presents financial problems for the city and county of San Francisco. For example, an extension of Runway 28–L to the west toward San Bruno would cost $1,410,000, but this would tend to complicate the noise problem, resulting in a decision to make the extension east toward the bay at a cost of $3,250,000.

The matter of property zoning, of course, is outside the area of Federal jurisdiction but testimony taken in the hearing should serve to put various groups on notice regarding the problem. In this area, witnesses cited the following:

1. Efforts to establish a public school at the former naval station at San Bruno in the approach zone.

2. Zoning regulations of the city of Millbrae which woul permit apartment construction in an area near the end of a runway. It was claimed that, although propery is in demand for light industry, such development was rejected for fear of depressing real estate values.

3. Efforts to get a buffer zone in Bayside Manor, just off the end of a runway, developed as a recreational area.

4. A proposal to develop a residential section for 40,000 people on Brewer Island in the approach path of planes coming in over the bay.

The Federal Aviation Agency has not issued noise abatement rules for San Francisco, as has been done in Los Angeles. Noise abatement efforts are being handled on a voluntary basis by the San Francisco Sound Abatement Committee, representing the industry and the airport operators. This committee has restricted night take-off operations on runway 1–R, except when northerly winds present a cross-wind hazard. Climb-out procedures have been modified to get higher altitudes over residential areas and agreements have been reached to reduce ground run-up noise. Any further relief, short or restrictions on traffic, apparently must wait until runway extensions are completed, although one witness said considerable relief could be provided to the Millbrae area near the end of a runway by the construction of a properly designed vane-type fence to deflect jet blasts.

LOS ANGELES HEARINGS

In Los Angeles, the subcommittee found considerable opposition, especially in the city of Inglewood, to the air traffic rule adopted by the FAA to promote noise abatement. The rule as finally adopted was somewhat more liberal than the one originally proposed. For example, a proposed restriction on jet operations between 10 p.m. and 7 a.m. under certain wind conditions was omitted on the grounds that it would interfere with the development of a sound national air transportation system. Citizens said this gives the industry an unfair right to invade their privacy.

Mayor George C. England said: "Before the jets came, we were told they would be no noisier than the propeller-driven aircraft. Instead, they are much worse and complaints are piling up."

City Administrator Hahn said residents could not be expected to endure the situation "endlessly". He said: "The local government lacks jurisdiction. The Federal government does have jurisdiction to correct the situation". He urged accelerated research on aircraft design and airport operation procedures.

Inglewood Councilman Jones and others asked elimination of all easterly jet takeoffs over Inglewood. He suggested a study be made of moving jet operations to Ontario Airport.

Witnesses also suggested that airlines be required to cut payloads to reduce noise.

Los Angeles International Airport was opened in 1928 as Mines Field. It was acquired by the city of Los Angeles in 1937. Airport officials said it would cost $200 to $300 million to duplicate the airport elsewhere.

Currently 13 domestic and 6 foreign airlines use the airport, averaging about 1,000 flight operations a day. It is the third busiest in the Nation, with 5,893,000 passenger movements in 1959. More than 75 tenants on the airport employ between 25,000 and 30,000 people, with a weekly payroll of more than $4 million. Most of the employees reside within a 15-mile radius of the airport.

The Federal Government has advanced more than $12 million in aid to construction of this airport.

Witnesses for the airport recommended increased governmental research and development of quieter engines and improved noise suppression devices. They outlined steps which have been taken to improve flight patterns in the interest of noise abatement and to extend the main instrument runway from 10,000 to 12,000 feet, allowing jets to take off 600 feet further west.

Information has been furnished the subcommittee that the aircraft manufacturing industry has spent approximately $55 million in developing noise suppressors. The National Aeronautics and Space Administration and its predecessor agency has spent appromixately $750,000 in the last 3 years in basic research on the jet noise problem.

RECOMMENDATIONS

Members who participated in the San Francisco and Los Angeles hearings have been impressed by the magnitude of the problem and the serious effect of jet aircraft noise upon communities in the vicinity of our major airports.

In addition to rulemaking by the Federal Aviation Agency and voluntary action by the industry to provide relief from noise, we urge and recommend expanded research on noise suppression problems and increased appropriations for Federal activity in this area and the continued study of emergency measures to provide relief. Additional attention should be given to airport planning to provide the maximum protection from noise.

With respect to aircraft noise problems in the vicinity of the San Francisco International Airport we make the following suggestions:

1. Extend runway No. 28–L to permit maximum possible takeoff operations to enable departing aircraft to attain sufficient altitude to turn north over the industrial area and not depart over any residential area.

2. Removal of jet training operations away from San Francisco International to the maximum extent possible will bring much relief and should be given first priority. We understand that by making a 3,000-foot runway extension, the airport at Stockton can be used for jet training; also, that installation of an instrument landing system will make Oakland airport available for jet training within a few months.

3. Install some type of barrier on runway R–1 to protect the city of Millbrae.

GENERAL RECOMMENDATIONS

1. Although this is outside the jurisdiction of the Federal Government and this committee, we feel that local political subdivisions should give more consideration to aircraft noise problems in community planning.

2. Accelerated studies and action on emergency measures to alleviate noise pending completion of runway projects.

The subcommittee will continue its study of the voluminous record of data obtained in these hearings and work with all concerned in seeking solutions for the many perplexing problems involved in jet-age transportation.

Mr. WILLIAMS. The next suggested question is—

I presume that this council has made many recommendations with respect to research into this field. Have they made any such suggestions; and, if so, what consideration is being given to those suggestions by the Agency?

Mr. PYLE. I am not too familiar with any specific suggestions or recommendations they have made in the research area. I believe, sir, that Mr. Spurgeon is here from NANAC. Perhaps he would like to speak to that.

But I would like to point out that we have been in the Government, and particularly in the National Aeronautics and Space Administration (NASA), have done an awful lot of work in this area.

As I have pointed out earlier, it was as a direct result of their research that these suppressors that are carried on all the jets now, it was due to this research that they were developed.

We, of course, are doing research, as I pointed out, also as a joint effort with NASA.

I think the manufacturers of both the aircraft and the engines are acutely aware of this, and if I recall correctly, Boeing spent in the neighborhood of $50 million on noise research, as just one example.

I think Douglas' expenditure was fully 50 percent of that. I am not sure of the exact figure.

Colonel Williams has some additional information that might be pertinent.

Colonel WILLIAMS. Mr. Chairman, we know, relating to the question you asked, that the engine manufacturers who support NANAC are currently expending—for example, General Electric currently has programed $2 million in a development program looking at redesigns, looking at setting forth criteria for the internal arrangement of their engines, based primarily on reduction of noise.

This, I believe, sir, is very significant, because it represents a change-over from what we used to see in the engine manufacturers from looking at noise as an afterthought.

Now, they have placed noise as one of the primary considerations and which they are trying to do something about in carrying out their responsibility to the public. They are very active in the field.

Mr. WILLIAMS. Any further questions?

Mr. Pyle, you have given us a very comprehensive and clear statement of what the Agency is doing in this field. In summary, it would appear to be that you are tackling this problem from several points of view, and several angles. First, as you said in your statement, you are attempting to get noise away from the people and the people away from the noise through seeking the cooperation of the local governmental subdivision in the establishment of zoning laws.

Second, you have taken steps to make your flight patterns, insofar as possible, away from highly congested areas where noise, of itself, becomes a nuisance.

And, third, you have required the adding of suppressors to aircraft.

Fourth, you are doing actual research into the field of noise itself, into the intensity and character of the noise. If I remember correctly, when the FAA came before this committee last year with a tape-recorded demonstration of various sound levels that are to be heard around an airport, if I remember correctly, a DC–7 actually produced more decibels than a 707 coming across at the same altitude and the same speed, but that the character of the noise was entirely different.

Mr. PYLE. Yes.

Mr. WILLIAMS. With a low-level noise, whereas the jet-level noise appeared to be of more intensity but on the machine, of less intensity, and was the more irritating to the listener.

Mr. PYLE. This is correct, sir.

Mr. WILLIAMS. Of course, this committee is very much interested in this problem, as is the Agency.

At this juncture, I frankly do not know what might be done by this committee that is not already being done by the Agency, and I personally would like to congratulate you on the work that is being done in this field, and for your cooperation with the committee in giving us this information.

Mr. PYLE. Mr. Chairman, if I could just say one word. I would like to point out, Mr. Chairman, that we agree with the committee completely on the importance of this problem. In fact, I think it is a correct statement to say that we consider noise as second only to safety as our major problem, and we are working at it day and night to do what we can to achieve a satisfactory level of noise abatement.

We will make it a point, Mr. Chairman, to keep the committee informed as progress is being made in this field, because I think it is important and I think it is helpful to us to report to you from time

to time, because I think the public is entitled to know what the Government and the aviation community is trying to do in the noise abatement area.

Mr. WILLIAMS. Thank you very much, Mr. Pyle.

We thank you and your associates for the time and trouble that you have taken to give us this information.

The committee stands adjourned.

(Whereupon, at 11:50 a.m., the hearing was adjourned.)

AIRCRAFT NOISE PROBLEMS

TUESDAY, JULY 17, 1962

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TRANSPORTATION AND AERONAUTICS,
AND SPECIAL SUBCOMMITTEE ON REGULATORY AGENCIES,
OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittees met at 10 a.m., pursuant to notice in room 1334, New House Office Building, Hon. John Bell Williams (chairman of the Subcommittee on Transportation and Aeronautics) presiding.

Mr. WILLIAMS. The subcommittees will be in order.

This morning, two subcommittees of the House Committee on Interstate and Foreign Commerce meet to consider one of the more perplexing problems confronting many of our citizens today.

The Subcommittee on Transportation and Aeronautics has general jurisdiction over legislation involving our national system of civil and military transportation.

The Special Subcommittee on Regulatory Agencies is the instrumentality created by the committee pursuant to the authority granted standing committees of the Congress by section 136 of the Legislative Reorganization Act of 1946. That section reads as follows:

> To assist the Congress in appraising the administration of the laws and in developing such amendments or related legislation as it may deem necessary, each standing committee of the Senate and the House of Representatives shall exercise continuous watchfulness of the execution by the administrative agencies concerned of any laws, the subject matter of which is within the jurisdiction of such committee; and for that purpose shall study all pertinent reports and data submitted to the Congress by the agencies in the executive branch of the Government.

I might interject parenthetically that I have been asked by Representative Oren Harris, of Arkansas, the distinguished chairman of the Regulatory Agencies Subcommittee, as well as of the parent committee, the Committee on Interstate and Foreign Commerce, to express his regret that prior commitments have precluded his participation in this first day of this hearing. We expect him to be present tomorrow.

The Federal Aviation Agency is one of the regulatory agencies under the jurisdiction of the Regulatory Agencies Subcommittee. I think any representatives of the FAA who are present today would agree that the Subcommittee on Transportation and Aeronautics also has more than a passing interest in the operations of that Agency.

The subject matter of this hearing, broadly speaking, is aircraft noise nuisances and hazards to persons and property on the ground. On August 23, 1961, the House of Representatives considered and agreed to House Resolution 420 by which the Committee on Interstate and

Foreign Commerce was authorized and directed—"acting as a whole or by subcommittee"—to conduct a "full and complete investigation" of the aircraft noise problem. Assuming no objection, I think this is an appropriate time to insert the text of House Resolution 420 into the record.

(House Resolution 420 is as follows:)

[H. Res. 420]

RESOLUTION

Resolved, That the Committee on Interstate and Foreign Commerce, acting as a whole or by subcommittee, is authorized and directed to conduct a full and complete investigation and study of the problems involved in, and measures to minimize or eliminate, aircraft noise nuisances and hazards to persons and property on the gound. In the conduct of such investigation and study, the committee, among other things, shall give attention to—

(1) the noise created by the operation of aircraft in the air and on the ground, and the effect of noise on persons and property on the ground;

(2) research and development in aircraft and aircraft engine design;

(3) research and development in design, application, and use of noise-suppression devices;

(4) the design, construction, and operation of airports;

(5) the cost of measures to minimize or eliminate aircraft noise nuisances and hazards to persons and property on the ground;

(6) air traffic rules governing the operation of aircraft at and near airports; and

(7) the extent of authority vested in Federal and local regulatory agencies and airport operators to prescribe safety regulations applicable to any airport operation or development, including authority to impose controls on the operation of aircraft so as to minimize the noise and other hazards created by the operation of aircraft, and the manner in which such authority has been exercised.

For the purposes of such investigation and study the committee, or any subcommittee thereof, may sit and act during the present Congress at such times and places within or outside the United States, whether the House has recessed, or has adjourned, to hold such hearings, and to require, by subpena or otherwise, the attendance and testimony of such witnesses and the production of such books, records, correspondence, memorandums, papers, and documents as it deems necessary. Subpenas may be issued under the signature of the chairman of the committee or any member of the committee designated by him, and may be served by any person designated by such chairman or member.

The committee may report to the House at any time during the present Congress the results of any investigation or study made under authority of this resolution, together with such recommendations as it deems appropriate. Any such report which is made when the House is not in session shall be filed with the Clerk of the House.

Mr. WILLIAMS. The committee is well aware that the problems of aircraft noise are nationwide. They are not confined to any one airport. In view of our tight schedule, however, and in order to give this hearing specific focus, the committee has elected to restrict our inquiry at this point to noise problems around the city of Chicago, and particularly to the difficulties encountered by the communities near Chicago O'Hare International Airport. For this purpose we have invited representative community leaders from the Chicago vicinity to testify. We plan also to hear from representatives of the Federal Aviation Agency, the city of Chicago—which operates the airport—the airlines, and the National Aircraft Noise Abatement Council, an organization supported by the Air Transport Association of America, the Aerospace Industries Association, and the Air Line Pilots Association to organize and coordinate the efforts of those organizations to cope with this complex problem.

While piston-powered airplanes, like the railroads and horseless carriages that preceded them, generated their share of noise complaints from disturbed citizens, it is only with the advent of the jet age that noisy aircraft have become a major problem. It is a complicated and vexing problem that so far has defied solution. Just last month, Chairman Harris put it this way:

> The increasing annoyance caused by noisy airplanes around our Nation's airports is largely a product of the increasing use of jet engines in our commercial and military planes.
>
> For several years now, Members of the House and many others have been acutely aware of the irritations generated by the roaring and whining of these powerful new engines.
>
> We are told that this annoyance and irritation is the price we must pay for technological progress in the jet age. To an extent, and we do not yet know to what exent, I think that statement is true. There is no question but that engines make noise. It is also true that as engines become more powerful they make more noise. And more powerful engines are being designed, manufactured, and operated every day.

Needless to say, the people—and the Congress—have, as their primary consideration, the question of safety.

Safety is the concern that inspired and the theme that pervades the Federal Aviation Act of 1958. That act is silent on the subject of noise. The committee is of the opinion that in spite of the fact that his is not specifically mentioned in the act, that the Federal Aviation Agency does have a certain responsibility in this field in connection with their responsibility for safety.

Nevertheless, the existence of House Resolution 420 reflects the recognition by the House of Representatives that aircraft noise is a problem for which the Federal Government may have some responsibility.

That recognition is the impetus for this hearing. The parent Committee and the Subcommittee on Transportation and Aeronautics have held hearings in order to inform themselves of the nature of legitimate complaints made by individuals bothered by noisy aircraft operations. In 1959, the committee heard complaints from residents in the Long Island area. In 1960, the subcommittee heard complaints from the Los Angeles and San Francisco, Calif., area. In 1960 and 1961, the subcommittee held hearings in Washington, D.C., on this question.

The House Committee on Science and Astronautics held hearings on these subjects in August of 1960, and that same year issued a report setting forth its findings.

Unhappily, because of the intricacies that beset us in our contemplation of the situation, we cannot yet feel that we have any final answer. Indeed, since the competing considerations of safety, economics, and the varieties of human temperament are involved, I am far from optimistic that a solution satisfactory to everyone with a legitimate grievance can be reached in the predictable future.

Any solutions achieved must be compatible with the maintenance and promotion of the safe, efficient, and economically feasible air transportation system described by the Federal Aviation Act of 1958. In considering these matters, it should go without saying that the subcommittees are interested in exploring what has been done, what is now being done, and what can be anticipated in the future to contend with the annoyance created by these noisy jets.

Permit me to digress at this point to say that the committee, through its previous hearings, has become well aware of the cause and effects of this problem. It is my hope that rather than deal primarily with the cause and effects, that the witnesses who will appear before this committee will concern themselves with the attempt to make some constructive suggestions which might lead to an eventual remedy.

On March 5, 1962, the Supreme Court of the United States rendered a decision holding an airport operator liable in damages to a householder whose suffering from aircraft noise over his house was sufficiently intense that he had to move out. That Court agreed with a lower tribunal that the airport, when it moved in on the householder, should have taken his land and paid him for it. In the wake of the Court's decision, lawsuits have sprouted all over the country, stimulated by disturbed airport neighbors who want to try that case on for size.

While the Supreme Court decision in this case will, more than likely, be rather limited in its application, nevertheless it has helped to highlight the fact that jet airplanes are in many communities not only a major source of complaint, but may have far-reaching consequences for a great many people.

Before closing, I might mention that these subcommittees are well aware of the fact that before the coming of jet traffic into O'Hare Airport in Chicago, Chicago's Midway Airport was one of the busiest, if not the busiest, airport in the world. Today it is my understanding that Midway Airport, which is not equipped to accommodate our larger jet transports, is virtually unused. Last week, the press reported that the last major trunk carrier to use Midway abandoned its schedules in and out of that airport.

I am advised by my colleague, Mr. Collier, that there are some 192 jet flights daily out of O'Hare Field.

While I understand that noise was not a prevailing consideration in the economic decline of Midway, there is no question of the severity of the impact of this development on the economy of the city of Chicago, and on the many passengers, shippers, and airport neighbors who are affected by it. I hope that the testimony we will hear today and tomorrow will shed some light on the Midway situation as well as the noise problem around O'Hare.

It is with these perspectives in mind that we are pleased to hear our first witness today.

At this point, the Chair will recognize our colleague from the State of Illinois, a member of the Transportation and Aeronautics Subcommittee, Mr. Collier, for a brief statement.

Mr. YOUNGER. Mr. Chairman, would he yield for one suggestion?

Mr. WILLIAMS. Surely.

Mr. YOUNGER. On page 5 you mentioned about the subcommittee holding hearings in Los Angeles. They also held hearings in San Francisco. I think that ought to be changed to read Los Angeles and San Francisco.

Mr. WILLIAMS. Very well, it will be changed in my revised statement.

Mr. Collier.

Mr. COLLIER. Thank you, Mr. Chairman.

I shall impose on the time of this committee very briefly now. However, I would first like to thank the distinguished chairman of our full committee, the Honorable Oren Harris, and the subcommittee chairman, Mr. Williams, for the very deep and sincere interest they have taken in the problem which has certainly taken on major serious proportions, particularly since the advent of the change at Midway Airport.

I hasten to say that I am deeply concerned, of course, with the existing problem, with the aggravation that it has caused the people of the many fine suburban communities in the immediate area of O'Hare International Airport. I would hope that during these hearings with the data, the technical information, and the facts that will be presented during these hearings, that we may find some areas of relief to the existing problem, at least to alleviate, in some degree, the problem as it now exists.

In working out the details of these hearings, several community leaders and public officials from the area embraced by my congressional district have been invited to appear and to make statements. With the permission of the chairman, I would like, at this time, to introduce them. They will offer their statements for the record later.

The Honorable Herbert H. Behrel, the mayor of Des Plaines, Ill.

The Honorable John H. Overbeck, Jr., mayor of Park Ridge, Ill.

Alderman James D. Cole, of the fourth ward of the Village of Park Ridge.

And the Honorable Edward E. Bluthart, president of the village of Schiller Park; all of whom will testify.

That is my statement for the moment, Mr. Chairman.

Mr. WILLIAMS. Thank you very much. We are very pleased to have you gentlemen with us, and we hope that your testimony may shed some light on this subject to assist the committees in meeting some eventual satisfactory solution to the problem.

Our first witness this morning is our colleague from the State of Illinois, the Honorable Roman C. Pucinski.

Mr. Pucinski, I can attest personally, has been extremely interested and active in connection with this problem for quite some time. He contributed greatly in persuading the committee to conduct these hearings today.

Mr. Pucinski, you may proceed.

STATEMENT OF HON. ROMAN C. PUCINSKI, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. PUCINSKI. Thank you very much, Mr. Chairman and gentlemen of the committee. I am delighted to be here this morning on behalf of the people of the 11th Congressional District, to make this statement.

If the committee will permit me, I would like to introduce Alderman Harry Bell, from the 41st ward, which is the ward lying immediately east of O'Hare Field, who will, at the conclusion of my statement, if it meets with the approval of the committee, present a very brief statement.

I am also very happy to call the committee's attention to the fact that we have with us today Alderman Egan, from Chicago, who is

chairman of the aviation committee; State Senator James Strunk, who is also from the Northwest Side of Chicago, and very close to this program; and Mr. Bill Downes, who I believe the committee will hear from later in the day or tomorrow.

Mr. Chairman, I have a statement which I have given the clerk of the committee, which I hope will be included in the record in its entirety, but I do not think that I ought to read the whole statement. Rather, I will try to confine myself to the chairman's request that we discuss the possibilities of some solutions to this problem.

Mr. WILLIAMS. We will be very happy to receive your statement in full for inclusion in the record.

Mr. PUCINSKI. Thank you very much, Mr. Chairman.

As I said, I wish to assure the committee that we are most appreciative of having this opportunity to bring this problem before the committee and discuss with the committee some of the problems which have arisen with the advent of the jet age at O'Hare Field.

O'Hare Field, which is today already the world's busiest commercial air terminal, is not in my congressional district. But, since its physical location is immediately west of the district which I represent in Congress, my constituents suffer almost indescribable hardships due to the noise generated by jet airplanes, every time the prevailing winds make necessary the use of runways 27 and 22 for landing or the use of runways 9 or 4 for takeoff. I believe the committee should know that since the prevailing winds in Chicago are either easterly or westerly, these four particular runways are used very extensively, which has an immediate effect on the 450,000 people whom I represent here in Congress.

Mr. Chairman, I want to state at the very outset that the overwhelming majority of people in my district with whom I have personally discussed this problem fully recognize that we cannot stop progress. They are completely mindful of the fact that O'Hare Field is vital to the continued economic development of Chicago and no one has seriously suggested that we should either ground the jet airplanes or remove them from O'Hare Field. I am proud of the mature attitude that the people in my district have manifested toward this problem. But there is a strong belief, which I completely share, that a great deal can be done to reduce the nuisance which is now being suffered by these people as a result of jet operations.

A great deal already has been done, and at the conclusion of my remarks I have included the procedures which have been adopted for aircraft operating at O'Hare Field which are tantamount to special procedures designed specifically for O'Hare. I am confident that if these procedures had not been adopted, the steadily increasing traffic at O'Hare Field would have made the situation completely unbearable. It is now unbearable, but I think we would have had a tragic situation if these new regulations had not been adopted. I think they certainly indicate that a great deal can be done through special procedures when the various agencies involved put their hearts to it.

Gentlemen, I have an aerial photograph of O'Hare Field and the area immediately east of O'Hare, which includes my congressional district. I should like to refer to this photograph in the course of my testimony to impress upon you gentlemen the extent of this problem. But, before I do this, I want to impress the other unequivocal

position taken by all with whom I have discussed this noise problem, and that is: unbearable as the noise from these jets is, not one single person concerned suggests that we should in any way reduce the safety standards in aircraft operation to reduce noise.

Here, again, I think the people have shown a very mature attitude toward this problem. We have heard around the country of demands being made to control these jet operations. In my district at least I am very happy and pleased to tell the committee the people have said, yes, they want relief, but they do not want it at the expense of safety standards.

If you look at the photograph of this area in relation to the 11th District, unlike many communities in the country where the community has followed the development of an airfield, here you have a situation where you had a whole series of communities that were built two decades before O'Hare Field was developed, Edison Park, Norwood Park, Wildwood, Edgebrook, the various other communities, Albany Park, so these communities have been built here for many years before O'Hare Field was built during the war. O'Hare Field was started as the old Douglas plant.

I might, therefore, say that these people are entitled to a special consideration. If these people had moved in on top of the field, certainly you would then apply the rule of caveat emptor, and say, "You should have avoided this." But these people have been there at least two decades before anybody ever thought of building an airfield in that community. Therefore, they have a problem.

As you can see on this photograph, here is O'Hare Field. Here is runway 27, the runway that when extended runs through this area of Chicago covering some 450,000 people in my district. You know the Doolittle committee made recommendations that you ought to have no development at least 3 miles from the runway. This was done in the development of O'Hare Field.

As you can see from this aerial photograph, there is no substantial development of any real estate property 3 miles east of the runway. But I submit the Doolittle committee report is already obsolete because with these giant jet behemoths that are coming in, they start their final approach 7, 8, 10, and 12 miles east of the runway, and they come in over this area at altitudes of 2,000 feet and less.

Here is the outer marker at Taft High School, 5 miles removed from O'Hare Field. These jets are coming in there at altitudes ranging anywhere from 900 feet to 1,500 feet. The outer-marker requirements call for this airplane to be at 1,500 feet at this location. If they would stay at 1,500 feet, perhaps the community could tolerate the situation. But on the basis of my own personal observations in this area, we have found that these airplanes come in there substantially lower than 1,500 feet. They have to interrupt, all day long, the classes at Taft High School, every day. They have to interrupt the classes at Taft High School because they cannot hear themselves talk during the day when runway 27 is being used for landing approaches.

Northwest of Taft High School, the outer marker, we have Resurrection Hospital. As I said in my statement, very frequently patients become practically hysterical in the hospital because they think that these airplanes are going to ram right into the hospital. This hospital does not lie in the path of runway 27, but as these airplanes come

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in for runway 27, they come in from all these directions and there is a real serious problem.

This is really the problem that we have. We have made some decibel studies 10 miles from O'Hare Field, 10 miles east of runway 27, decibel studies that were made on July 8, which showed that at 5 o'clock in the afternoon an airplane taking off from O'Hare Field, 10 miles away from the field, registered a decibel reading of 108 decibels. You gentlemen know that 100 decibels is considered the breaking point. Beyond that you have all sorts of problems, emotional and otherwise. And yet, here we have a situation where 10 miles away you have an airplane with a reading of 108 decibels.

I submit that what is happening here is that while the airlines have created added thrust to give these airplanes lift, and they hope to get these airplanes up to higher altitudes faster to reduce the amount of interference to the people of the community, I think what is happening is that they are taking off with heavier loads, and they have negated whatever advantages might have been created by the extra thrust to get them into higher altitudes.

These are the things that we think can be done to help the situation:

No. 1, as you know, the FAA has had some very successful tests down in Atlanta, Ga., on radar vector control. I do not know of any reason why these airplanes should be all over this area on their final approach causing this tremendous problem and hardship to all of these people. You know that they use a latitude of some 3,000 feet leeway either way of the outer marker, and, therefore, we have them flying over Resurrection Hospital and Edison Park; we have them south of there; we have them flying all over this area. I sincerely believe that if the FAA will install radar vector control in Chicago to bring these airplanes in on a prescribed pattern, where you have a definite area in which they go and stay, it will be of assistance. These people will suffer some inconvenience, but at least you will reduce to a minimum the number of people that will suffer inconvenience. That is one of the recommendations we have made.

The other recommendation we have made is that instead of bringing these airplanes in from all over the area into this outer marker, which is in the heart of this tremendously congested situation, we make wider use of Lake Michigan. We had a source of natural relief in Lake Michigan. I submit that if the FAA will adopt rules—and I hope when Mr. Hines is here, the regional director of the FAA, he will be queried by the committee on this point—that instead of starting their final approach at the point in the heart of the congested area, if they will start that final approach out in Lake Michigan, which is off of this picture, at a higher altitude of perhaps 6,000 feet, that airplane is going to be on its final approach for, granted, 15 miles, but he is going to be in a glide slope, starting at an altitude of 6,000 feet. When he gets to this point, he will be no higher or lower than he is now, but he will not need the power settings that he needs now to maintain altitude because he is in a glide slope.

We feel that these airplanes then could come in here perfectly trimmed with their flaps down, wheels down, and everything else, and reduce the amount of power settings they now need to do all the things they are doing, and they could eliminate to a great extent the noise problem.

Another factor that we are recommending is that the committee seriously look into what happened in the mass evacuation of Midway airfield, for the simple reason that we feel that with the added propeller operations at O'Hare, these airplanes have to come in much faster. We are today landing and taking off some 1,100 airplanes in a 24-hour period at O'Hare Field. You know and I know that when these airplanes come in fast at intervals of 30, 35, 40, and 45 seconds, they have to come in much faster, and certainly there is an element of noise involved in the additional air turbulence when these airplanes come in fast.

I think that by moving the props back to Midway, you would relieve the situation at O'Hare to a point where you could extend your landing and takeoff pattern, where you could create some relief as far as the fast landings are concerned.

I might say here, parenthetically, that it is only a matter of time when you will have two more ghost airfields in America. Today you have a ghost airfield at Midway, the only ghost airfield in this country. But I say that if the lesson and experience that was demonstrated in Chicago at Midway is repeated here 1 year after Dulles becomes operational, you are going to have a ghost airfield at National and another one at Friendship for at least 10 years, until the demand catches up. So I think the Congress ought to look into that situation.

The other thing we have recommended to Congress is that we put monitors at the end of these runways. As you know, there is no possibility of 3-D radar for a long time. So we felt that if Congress would recommend to the FAA to put receiving monitor teams at the end of these runways to help police the operation of these airplanes coming in for landings in clear weather, this would help.

We are also very pleased to know that the FAA recently has asked the major carriers to restore the underwing markings. We feel that many pilots are doing a very sincere job in trying to keep their aircraft at the highest altitude they can for the longest time. I know from my own experience that many pilots are doing a good job at O'Hare Field. It is not fair to indict all the pilots for the dereliction of the few. But it becomes very difficult for the people to identify the man that they are complaining about. When you have a train of airplanes coming in at 35-second intervals for landings, and you have them stretched out for several miles, it is rather difficult to pinpoint exactly the man you are complaining about. So we have asked the FAA to restore the underwing markings.

Mr. Halaby has recently asked the airlines to initiate this action.

These are basically the points that we have recommended to help remove this problem of noise. It is quite apparent, Mr. Chairman, that something can be done.

As I said before, we are not suggesting that we eliminate jet operations, but certainly within the realm of some of the things that I have mentioned here, and these are ideas that have been developed by the various civic and social organizations in my district, we feel that they will help.

The other area that I think the committee should give serious consideration to is a revision of the Federal Aviation Act. This Act has not been rewritten, except for administrative procedures, since 1938. This act was written when we were flying Piper Cubs. Today

we are flying jets. Therefore, I think some consideration should be given to what are the rights of people in areas surrounding major airports using jet operations. I think that the committee may very well want to look into the act and see whether or not we should not at this time set some standards on how big do we want these airplanes to get.

There is talk about 270-passenger airplanes. Has anybody considered how far back these giants will have to start their final approach and how many thousands of people are they going to competely inconvenience because of the landing operations? Perhaps the Congress may want to look into the maximum standards for commercial carriers. These are the things.

The chairman asked for some suggestions on what can be done to meet the problem. I submit, Mr. Chairman, that some of the things that the people of my district have discussed and today presented to this committee can serve as a basis for considering how we can remove some of these problems.

I would also like to call the committee's attention to this very fine booklet that was prepared with the cooperation of the National Aircraft Noise Abatement Council, which shows what has already been done.

(The booklet mentioned may be found in the files of the subcommittee.)

Mr. PUCINSKI. I am confident that reasonable men can find reasonable solutions to the problems that confront our community as a result of the advent of the jet age.

Mr. Chairman, if you will permit, I would like, at this time, to call upon Alderman Bell, to present his statement to the committee, and then perhaps, if there are any questions, we will be very happy to answer them.

(Mr. Pucinski's prepared statement and information mentioned above follow:)

STATEMENT OF HON. ROMAN C. PUCINSKI, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. Chairman and members of the committee, on behalf of the people of the 11th Congressional District of Illinois, which takes in the entire portion of Chicago's far northwest side, permit me to express their appreciation for making it possible to call to the attention of this very distinguished committee the problems which have arisen with the advent of the jet age at O'Hare Field.

O'Hare Field, which today is already the world's busiest commercial air terminal, is not in my congressional district. But, since its physical location is immediately west of the district which I represent in Congress, my constituents suffer almost indescribable hardships due to the noise generated by jet airplanes. every time the prevailing winds make necessary the use of runways 27 and 22 for landing or the use of runways 9 or 4 for takeoff. I believe the committee should know that since the prevailing winds in Chicago are either easterly or westerly, these four particular runways are used very extensively, which has an immediate effect on the 450,000 people whom I represent here in Congress.

Mr. Chairman, I want to state, at the very outset, that the overwhelming majority of people in my district, with whom I have personally discussed this problem, fully recognize that we cannot stop progress. They are completely mindful of the fact that O'Hare Field is vital to the continued economic development of Chicago and no one has seriously suggested that we should either ground the jet airplanes or remove them from O'Hare Field. I am proud of the mature attitude that the people in my district have manifested toward this problem. But there is a strong belief, which I completely share, that a great deal can be

done to reduce the nuisance which is now being suffered by these people as a result of jet operations.

A great deal already has been done, and, at the conclusion of my remarks, I will include the procedures which have been adopted for aircraft operating at O'Hare Field which are tantamount to special procedures designed specifically for O'Hare. I have worked very closely with the Federal Aviation Agency on this problem at O'Hare during the past 4 years and I am convinced that if these special procedures now in use at O'Hare Field had not been adopted, the noise problem today would be vastly greater than it is. But even with these special procedures—and here I think the FAA deserves a great deal of commendation—we continue to have the problem because of the steadily increasing volume of traffic at O'Hare. We now handle in excess of 1,100 takeoffs and landings at O'Hare in a 24-hour period. During the peak hours, namely in the late afternoon and early evening, you can see a long line of aircraft on the final approach, landing at intervals of less than 45 seconds.

Gentlemen, I have here an aerial photograph of O'Hare Field and the area immediately east of O'Hare, which includes my congressional district. I should like to refer to this photograph in the course of my testimony to impress upon you gentlemen the extent of this problem. But, before I do this, I want to impress the other unequivocal position taken by all with whom I have discussed this noise problem and that is: Unbearable as the noise from these jets is, not one single person concerned suggests that we should in any way reduce the safety standards in aircraft operation to reduce noise.

FAA Administrator Najeeb E. Halaby has stated that under no circumstances will he reduce safety standards in flight operations as a part of any noise-abatement program. I can assure this committee that those people with whom I have discussed this subject in my district (and this represents literally thousands of people) fully agree with and support Mr. Halaby's position.

On March 18 of this year, I met personally with the presidents of virtually all of the civic organizations in my district which are affected by this noise problem at O'Hare Field. This meeting was held in the office of Alderman Harry Bell, of the 41st ward, who has been doing a magnificent job in trying to resolve this problem and who, incidentally, has come here today to sit in on these hearings. I think the committee will be interested to know that every single president attending that meeting stated that he and his organization do not want flight safety standards, either on takeoff or landing, in any way reduced as part of a noise-abatement program. I stress this point, Mr. Chairman, because I want to emphasize to this committee the completely mature and understanding attitude which the citizens of my community are displaying toward this problem of jet noise. These are not fanatics who completely disregard the realities of life. The people for whom I am speaking here today have demonstrated a completely realistic approach to this problem, and it is for this reason that I think that both the Government agencies and the Congress should accept their views in the spirit in which they are presented.

Unlike the development of most other major airfields in America, where the population has followed the airfield, I believe the people in my district are entitled to special consideration, because practically all of their communities were built at least two decades before anybody talked about the development of O'Hare Field. Edison Park, Norwood Park, Jefferson Park, Albany Park, Wildwood, Edgebrook; these are but a few of the communities in my district that were there long before O'Hare was even on the drawing boards. I am familiar with the strong appeal which the chairman of this committee, the gentleman from Arkansas, Mr. Oren Harris, has made against permitting the buildup of areas in the immediate vicinity of Dulles International Airport, which is now being built out here in Virginia. I think Mr. Harris has performed a very real public service by calling attention to this problem. But, Mr. Chairman, this is not the situation that prevailed in the area lying east of O'Hare, and because these homeowners developed this area many years before the advent of the jet age, I submit that they are entitled to special consideration.

As you will see from this aerial photograph, this vast residential area lies at least 3 miles east from the edge of runway 27. You will also note from this aerial photo that the developers of O'Hara Field followed the Doolittle Commission recommendations in prohibiting the development of housing projects lying within a 3-mile radius of runway 27. But, gentlemen, with the advent of these globe-circling jet behemoths, it is apparent that even the Doolittle Commission recommendations are obsolete.

These giant jet carriers start their final descent for a landing 6 and 7 miles away from the runway, and they come in for the final landing at a prescribed altitude of 1,500 feet, 5 miles east of runway 27.

This committee will be interested to learn that the outer marker of runway 27 is on the campus of Taft High School, and I think it is incredible that, throughout the day, the teachers and students of Taft High School have to interrupt their studies as these airplanes make their turns over the outer marker—5 miles east of O'Hare Field—for their final approach.

Just northwest of Taft High School, and 4 miles away from O'Hare Field, is the Resurrection Hospital, one of the largest and most beautiful hospitals in Chicago. I have been told by authorities at this hospital that the airplanes come in so low on their final landing approach that patients fear the planes will smash into the hospital. You can well imagine what an emotional impact such an experience has on a sick person.

We have reason to believe, and I know from my own personal observations during many weekends in Chicago, that many of these airplanes are not maintaining their minimum final approach altitude and are coming in substantially lower than prescribed flight path requires.

Recently I suggested the FAA order the painting of underwing markings on all jet carriers so that people could more readily identify those pilots who come in below the prescribed minimum altitude for the final glide path. I am pleased to advise the committee that Mr. Halaby has asked the commercial carriers to install such underwing markings. May I at this point thank Congressman Harris and Congressman Williams for the understanding they showed of this problem when I discussed it with them.

I think the committee will be happy to know that as one who has lived with this problem for the past 4 years, I am very much impressed with the efforts Mr. Halaby and his staff are exerting to reduce this noise problem to a minimum. I think he deserves the commendation of all of us in Congress for attempting to reinstitute wing undermarkings.

Gentlemen, this problem of jet noise is not peculiar only to the United States. I think the following paragraph from Mr. Halaby's letter to me advising me that he has urged underwing markings will show you that this is really a worldwide problem:

"I think you will also be interested to know that after our conversation we were able to contact immediately the U.S. Delegation to the International Civil Aviation Organization Airworthiness Meeting which was being conducted in Montreal at that time. As a result of this, we have now obtained complete international agreement on the use of the large letters on the side of the fuselage as an international standard and on the use of the registration numbers or other identification on the bottom of the wings of the aircraft as an international recommended practice. We hope that this will lead to the painting of numbers on the underside of the aircraft by foreign airlines. We have had strong indications from the British, French, Dutch, and others that there is much interest in this matter in their countries and that their problems are not at all unlike ours."

I am convinced that with the installation of underwing markings, we will go a long way in helping local communities specifically identify those airplanes whose pilots, for reasons known best to themselves, go beyond noise abatement procedures established at the major airfields within acceptable safety standards.

In all fairness, Mr. Chairman, I think it should be pointed out that many pilots try very diligently to keep the noise level down. These men should not be indicted blanketly for the derelictions of the few. I also believe the airlines have tried conscientiously to meet the noise problem. But much more needs to be done.

Mr. Chairman, I would like to include at the end of my testimony a statement prepared by the Northwest Federation of Improvement Clubs, which was organized in 1914, and represents 30 community improvement and civic organizations in my district. This organization, whose president is Richard J. Wuerst and whose secretary is George J. Trinkaus, recently delegated the chairman of its aviation committee, Mr. Arthur J. LaPointe of 2940 West Eastwood Avenue in Chicago, to do a sound level study of aircraft taking off and landing from O'Hare Field.

This study shows perhaps more than anything else that I might say that we have problems with these jet aircraft many miles removed from the airfield itself.

On Sunday, July 8, 1962, noise levels of jet aircraft departing from O'Hare Field in an easterly direction were recorded as high as 108 decibels at 2940 West Eastwood Avenue, which is approximately 10 miles east of the airport. This peak was reached at approximately 5:10 p.m. with an east wind of 10 to 15 miles per hour, ceiling unlimited, visibility clear and unlimited, altitude of aircraft estimated at 2,000 feet.

The decibel readings on this day between 4 and 6:30 p.m. averaged 94 decibels. These noise levels were recorded with a General Radio Co. Sound Survey Meter Type 1555–A. function switch set at C+30 D.B. weighting, and attenuator level set at 80 D.B. The meter was up on a tripod in a clear area eliminating reflector effects from nearby buildings.

This test was conducted under the personal supervision of Mr. LaPointe. You gentlemen undoubtedly know that 100 decibels is generally accepted as a most uncomfortable level of sound which could cause physical and emotional strain. Yet, here 10 miles east of the airfield, we have a reading of 108 decibels.

The rest of Mr. LaPointe's report and his organizations' recommendations will follow my own testimony.

This 108 decibels reading of a departing jet, 10 miles from the airfield, indicates to me that while the aircraft industry has increased the thrust of its engines to attain higher altitude within a shorter period of time, apparently they are negating whatever advantages extra thrust may give their engines in lift by taking off with heavy loads.

It is inconceivable to me that we could obtain a reading of 108 decibels on a departing aircraft 10 miles east of the field if the pilot was using full power to reach higher altitude within this span, unless he was carrying an unusually heavy load and could not climb as rapidly as he would like.

Mr. Chairman, I will present to the committee in a few days a series of individual complaints filled out by residents of my district on a formal complaint report which has been prepared by the Bryn Mawr-Higgins Community Club, whose president is Mrs. Helen J. Wozniel, and whose aviation committee chairman is Mr. Ralph Fornear.

I should also like to include a statement by Mr. Henry Zielinski, president of the Norwood Park Citizens Association, whose organizations have been in the forefront in trying to follow a logical and reasonable program to bring about a reduction in the noise levels in the area of O'Hare Field.

Mr. Chairman, the testimony which I am presenting to this committee today represents the views which have been sent to me on various occasions by many citizens of my district and by civic organizations. Included in this group are the Edison Park Community Council, Oriole Park Community Council, the Foster Harlem Property Owners Association, the Thornhill Club, the Irvingwood Improvement Association and many more.

I have tried to give you a picture of the gravity of the problem. Permit me now to discuss with the committee some of the solutions which I think could go a long way toward helping reduce this problem.

It is my hope that the airlines will reverse their recent decision to move all of their propeller-driven planes, which previously operated out of Midway, to O'Hare Field, and, as quickly as possible, move the propeller planes back to Midway.

O'Hare Field was built to help reduce the volume of traffic which had reached a saturation point at Midway. What has actually happened, Mr. Chairman, is that as soon as O'Hare became operational, the airlines moved their entire operations from Midway to O'Hare, lock, stock and barrel. In effect, this merely transferred the problem from Midway to O'Hare.

I do not believe either the Congress or the local communities ever intended for the airlines to pull such a stunt. There is a direct relationship between the noise problem at O'Hare and the fact that traffic has been increased at O'Hare when propeller-driven planes were added to the jets at O'Hare.

Those of you who fly know that the faster a plane comes in for a landing, the greater is the air turbulence created and a certain degree of noise is generated by these high-speed landings.

These airplanes at O'Hare Field have no choice but to come in hot and fast when they are stacked up the way they very frequently are at O'Hare. By diverting the propplanes back to Midway, the jet aircraft would have an opportunity to come into O'Hare in a much more orderly manner than is now being practiced and at slower speeds. This in itself would help reduce the noise problem.

I might add here, parenthetically, that this committee might want to look into the problem of Midway, which is today America's only ghost airfield. I think it is safe to predict, Mr. Chairman, that what has happened at Midway will be repeated right here in Washington within 12 months after Dulles International Airport becomes operational.

If we are to use our experience in Chicago, it is safe to predict that 12 months after Dulles becomes operational, both Washington and Friendship may become ghost airfields similar to Midway, for at least 10 years or until such time as the demand for their facilities catches up with these fields.

I have several other recommendations to point out to the committee and in order to save time, I would like to refer to a memorandum which I prepared regarding a meeting I had in Chicago concerning this problem in March of this year.

My recommendations are incorporated in this memorandum and I am convinced that serious consideration of these recommendations will help to reduce the noise problem. There is only one final observation I want to make before referring to my memorandum:

Several people in my district, who have been staying very close to this whole problem, have quite properly pointed out that existing laws dealing with air carriers were written for the most part 24 years ago at a time when we had relatively low-powered aircraft and noise was no particular problem. In those days, trains presented a greater nuisance to most communities in America than did the aircraft of that era. It is particularly significant to note that there have been no major changes in the Civil Aeronautics Act, other than changes dealing with administrative matters such as the creation of the Federal Aviation Agency, since 1938. I have been unable to find anytthing in the existing act which either deals with the rights of property owners in areas surrounding major airfields or maximum decibel levels for large communities in the area of major airports. Or, for that matter with the maximum size of aircraft.

I believe the time has come when Congress should very seriously look into all of these problems, particularly in view of the recent Supreme Court decision which imposes upon local communities certain financial obligations even though these local communities have nothing to say about the actual operation of the airline industry. There is talk of the industry developing commercial carriers capable of transporting 270 passengers. Has anyone stopped to consider how far away from the airfield these jet behemoths will have to let down to make their final approach and how many people in this country will, as a result, be shaken out of their skins in the name of progress?

I think that the people in areas surrounding major airfields have an inherent right to the protection of their property and their personal well-being, and I think that the Congress of the United States can no longer escape its responsibility to define these rights.

There is a serious question as to whether or not commercial carriers were wise in going into the giant 707's and DC–8's, which are today causing such havoc in communities all over the world. In last Saturday's Chicago Tribune, there appeared an article which stated that United Air Lines has experienced phenomenal success with its Caravelle jet fleet. This article pointed out that United Air Lines carried 734,000 passengers in their first year of operation. This article, which I will include in its entirety at the conclusion of my remarks, points out this very significant fact: that the load factor of United's Chicago-to-Newark Caravelle flight has ranged above 92 percent. The jet carries 64 passengers.

What a striking contrast this is to the frequent near-empty flights of the 707's and DC–8's, which have created tremendous financial problems for all the major carriers. I think the Congress should examine whether or not we should permit the airline industry to develop even larger carriers—on which they are losing their shirts and are coming to the Government for financial assistance—or whether in the national interest, public convenience and necessity, and public health, some maximum standards should be established for the size of commercial airliners operating into and out of large urban areas.

It is quite obvious to me that by operating under the 1938 act, we are still using standards which were designed to deal with single-engine (so to speak) Piper Cubs to control flight operations of the globe-circling jet behemoths of today.

Nowhere in the existing law is there any provision which recognizes the rights of the thousands of people who live in the areas surrounding jet airports. One side issue of this whole problem, that didn't even exist in 1938, is the fact that thousands upon thousands of families who live in such areas are unable to enjoy the full pleasure of their television sets. I am told that the satellite communications system, when fully operational, will offer some hope of relief to this particular problem, and I would like to congratulate Congressman Harris, Congressman Williams, and the rest of the members of the House Interstate and Foreign Commerce Committee, for the tremendous leadership which they demonstrated in getting through the House legislation which will speed along the development of this satellite communications system. But, I do wish the committee at this time would exert a greater degree of pressure on the Federal Communications Commission to prod the television industry to develop television set adapters, which would filter out interference from low-flying aircraft, to afford the people whose homes are adjacent to airports a greater degree of televiewing pleasure.

Mr. Chairman, I have reviewed for your committee the depth of this problem and in the following memorandum you will find some of the solutions that I propose to meet this problem. I can assure you that my testimony here today in behalf of the people of the 11th Congressional District is motivated by a most sincere desire to help provide an early solution. It would be cruel and almost inhuman to dismiss the plight of tens of thousands of people who today suffer indescribable hardship because of jet operations as just another facet of progress. Nobody wants to stop progress, but I don't think that we can justify the hardships suffered by these people merely by saying that this is the price we pay for progress.

Throughout the history of our country, reasonable men have found reasonable solutions to problems. Our people are willing to meet the airline people more than half way in tolerating some degree of discomfort in the name of progress, but I do not think that these people will tolerate any wanton disregard of their rights and their present plight.

I know that a very great deal is being done on this whole matter. Some time ago, with the cooperation of the National Noise Abatement Council, a brochure was prepared in my office to show the degree and the extent to which the Federal Government, the airlines, the airport operators, the airplane manufacturers, and the pilots are going to meet this problem. I should like to make this brochure a part of the record at the conclusion of my remarks.

I am also mindful of the tremendous job that local governments, within the very limited scope of their authority, are doing to meet this problem. I know for a fact that Mayor Daley has been very intensely concerned with this problem and has initiated moves to return some of the propeller-driven planes back to Midway to help relieve the problem at O'Hare.

It is my hope that these hearings will help crystallize the gravity of this problem and will help impress on all those concerned—the airline industry, the aircraft manufacturers, the Federal agencies and, yes, the pilots—that the thousands upon thousands of people who live in the vicinity of large airports have inherent rights which must be respected and that all of us working together can help chart a solution.

Among the steps that can be taken immediately to improve the noise situation, in my judgment, is to encourage the FAA to develop its radar vector landing control system.

This procedure has been tested very successfully by the FAA at Atlanta, Ga., and I believe it should be installed in Chicago as quickly as possible.

It is my understanding that the FAA is planning to adopt the system at O'Hare Field very shortly. Under this system of radar vector control, a landing aircraft is directed through the entire landing pattern procedure.

I believe this would reduce to a minimum the areas of discomfort which are produced by landing aircraft and would avoid the situation which we now have as these airplanes, on their final approach, fly over vast areas of my district.

Mr. Chairman, following are the recommendations which were discussed at my meeting of March 18, 1962. I am also including the operational procedures now in operation at O'Hare:

MEMORANDUM RE CONFERENCE WITH PRESIDENTS OF CIVIC GROUPS OF THE 11TH CONGRESSIONAL DISTRICT CONCERNING O'HARE INTERNATIONAL AIRPORT, MARCH 18, 1962

Congressman Pucinski met on Sunday, March 18, with presidents and other members of several civic organizations on the northwest side of Chicago in an effort to discuss the problem of noise abatement at O'Hare Field.

The meeting was held in the office of Alderman Harry Bell, 5300 N. Northwest Highway, and the Congressman expressed gratitude to Alderman Bell for his cooperation in making the space available for the meeting and also his contribution to the general discussion.

Participating in the conference were the Norwood Park Citizens Association; Oriole Park Community Council; Foster-Harlem Property Owners Association; Thornedale Club; Bryn Mawr-Higgins Community Club; North West Federation of Improvement Clubs; and the Irvingwood Improvement Association.

At the invitation of Congressman Pucinski, four officials of the Federal Aviation Agency attended the meeting. These included George Niles, FAA Director at O'Hare; his deputy, Mr. Schwank; and Mr. Underwood and Mr. Ziegler, both from the regional FAA office in Kansas City.

Congressman Pucinski outlined the special landing and takeoff procedures which have been instituted at O'Hare Field as a result of a series of discussions and conferences which the Congressman has held with the FAA during the past year. He particularly stressed the regulation affecting nighttime landings and takeoffs during the hours from 11 p.m. to 7 a.m.

Those who attended the meeting agreed that despite the increase in traffic, there has been an improvement in the overall situation at O'Hare Field, but they stressed that under certain weather conditions and because of the lack of cockpit discipline on the part of pilots, many airplanes still create a serious noise problem, particularly on the landing approach.

The revised operating procedures at O'Hare Field mentioned earlier appear as appendix 1 to this memorandum.

Congressman Pucinski outlined a six-part program which he has presented to the FAA in the continuing effort to reduce noise at O'Hare Field to an absolute minimum without jeopardizing safety standards.

Several of the members attending the conference stressed that while they are deeply concerned about the noise problem, they would not support any noise abatement efforts which would reduce operating safety standards and jeopardize the community.

Congressman Pucinski pointed out to those assembled that as a result of hard work by himself and the various community organizations in Chicago and throughout the country, the FAA now recognizes the noise problem as a nationwide problem and has revised its schedule of priorities.

The schedule of priorities in consideration of flight operations provides that first priority be given to safety standards; second priority to noise abatement; and third priority to scheduling of air missions and other related factors. Up until recently, priority 2 and priority 3 were reversed, and the FAA had given noise abatement the lowest level of consideration. Congressman Pucinski said that a great deal of credit goes to the new FAA Administrator, Najeeb Halaby, who is intensely working on proposed solutions to reduce the noise factor.

The Congressman explained that the House Committee on Interstate and Foreign Commerce has been given a mandate by the House of Representatives to conduct a thorough investigation of the noise problem at major air fields, including O'Hare Field. A resolution ordering such an investigation was approved by Congress in the last session, and Congressman Pucinski said he supported the resolution.

He has been in close touch with the committee, and he advised the group that while the committee had originally planned to hold hearings at O'Hare in March, because of similar demands for hearings from virtually every other major city and, furthermore, because the committee is now conducting hearings

on the satellite communications program, the O'Hare hearings had to be postponed to a later date. He said, however, that in the meantime the committee's technical staff is gathering data on the various fields.

He also informed the group that the FAA is contemplating conducting a technical noise level study on landing aircraft at O'Hare and other major airports. The FAA already has data as to the noise level for aircraft taking off, but no such data exists for landing aircraft. The survey is to be made at the suggestion of Congressman Pucinski so that criteria can be established regarding noise levels on a more scientific basis.

The six-point program which Congressman Pucinski said he presented to the FAA is as follows:

1. Create "holding areas"—which approaching aircraft circle until they are cleared for a landing—considerably further away from the field and at higher altitudes. Under this plan, the landing aircraft would be vectored through the use of radio beams directly to the runway from a higher altitude. Since the aircraft would be descending all the way, it would not need the amount of power now used for thrust in the final approach, thus reducing the noise level. Most aircraft now make their final approach for landing at a fixed altitude and with open throttle.

2. Call for an immediate study by the FAA of acceptable decibel levels on landing approaches for jet aircraft to set maximum and minimum criteria consistent with safety standards. The FAA has conducted decibel studies for jets on takeoff, but no similar data is available for landing aircraft, even though most complaints of excessive noise are lodged against landing jets. Minimum altitudes for landing aircraft could then be established on a more realistic basis than existing methods.

3. A study of higher slope settings for landing aircraft. Present regulations call for either a 2¾° or 3° angle of approach for landing. This means jets approaching O'Hare from the east fly over Taft High School at approximately 1,500 feet and decrease their altitude over residential areas in Chicago as they come nearer the runway. A higher angle of approach would permit aircraft to maintain higher altitudes over residential areas a good deal longer. Preliminary studies have shown jets can be landed successfully at a 4¼° approach slope with no adverse effect on passengers in the plane.

4. Since development of three-dimensional radar, which would give the altitude of an approaching aircraft as well as direction and speed to the tower, is still far off, the program for installing an air traffic control radar beacon system in all jets should be speeded up. This system utilizes the use of a radar altimeter in the aircraft, which sends a coded running signal of the airplane's altitude at all times into a receiver in the control tower. The tower would in this manner be able to better police the minimum altitude requirements for approaching aircraft. Installation of receivers for such equipment is now underway at O'Hare.

5. Assignment of FAA personnel at the end of runways being used for approaching aircraft to serve as monitors who would visually observe the altitude of landing aircraft until installation of electronic equipment is completed.

6. Order marking the underside of both wings on all commercial aircraft with letters sufficiently large for easy identification of the airline and the code number of the landing aircraft from the ground. This would give residents of areas disturbed by a low-flying airplane an opportunity for positive identification of the violator. The Defense Department has long sought such marking of commercial aircraft.

Pucinski said he is confident that the painting of large numbers and the designation of the carrier on the underwing of commercial aircraft would have a twofold effect. First, it would give citizens a method of positively identifying those pilots who create a serious disturbance in their landing or takeoff approach. Secondly, it would make the pilots realize that the people below have a way of positive identifying their particular airplane if they cause an unnecessary disturbance.

Pucinski also stressed the first point in his suggested program which would set the holding area further away from the airfield and bring the planes in for a landing from a higher initial altitude. He said he is quite certain that if these airplanes were landing in a gradual glide slope altitude, they would need

less power for thrust to maintain altitude, and there would be a commensurate reduction in noise from landing aircraft.

Since the meeting with the civic group, the Congressman has held more meetings with the FAA and reports that a special unit has been established at the FAA to study during the next 60 days the feasibility of the extended glide slope-reduced power theory.

He said the FAA is also very seriously considering ordering the undermarking of wings so that airplanes can be more readily identified from the ground. The Congressman is hopeful that this particular point will be ordered at least for jet aircraft in the very near future.

The meeting ended after a very lengthy exchange of views and ideas among the various people in attendance. Congressman Pucinski said he is very hopeful that his proposals will be carried out as quickly as possible.

Appendix 1. Procedures at O'Hare

1. Departing aircraft climb to 2,000 feet above the surface as rapidly as practicable. Landing aircraft maintain an altitude of 2,000 feet above the surface as long as weather is not a factor.

2. When O'Hare weather is reported as having a ceiling of 2,000 feet or higher and visibility of 3 miles or more, westbound traffic departing on runway 32–L make a left turn as soon as practicable after takeoff. When the reported weather is less than the above, the departures maintain takeoff heading until reaching 2,000 feet above the ground before starting their turn. These restrictions have reduced the noise over Elk Grove.

3. When weather conditions exist which are equal to, or better than, those outlined in item 2, westbound traffic, with the pilot concurrence, departing O'Hare on runway 14–L and 14–R execute the Toll Road departure. This procedure restricts the departure to a right turn within the confines of the Toll Road which makes a curve southeast of O'Hare and the railroad yards 2 miles south of the airport.

Within the last year, we also have been able to work out satisfactory coordination procedures between Midway and O'Hare towers whereby westbound traffic operating from the same runways are almost without exception making right turns when weather conditions exist which are less those outlined in item 2.

Since the largest share of the traffic movement at O'Hare is to and from the west, there has been a substantial reduction in the percentage of aircraft movement over the area lying east of O'Hare Field. This is especially true when it is realized that a year ago aircraft taking off southeast made left turns out over Schiller Park, Chicago, and Park Ridge before proceeding westbound.

4. Through revising procedures and by imposing restrictions on Midway traffic, we have been able to develop and implement straight-in approaches to runways 32 at O'Hare Field. This has eliminated, to a large extent, the low flying aircraft from the area east and southeast of the field. These aircraft previously had been compelled to let down northwest of the field and circle at low altitude beneath the clouds to land to the west of northwest when conditions would not permit landings on the other runways.

5. The following procedures for nighttime takeoffs and departures at O'Hare Field between 11 p.m. and 7 a.m. daily have been put into effect:

Departures

Runways 4 and 9 will not be used for turbojets.

If runway 9 must be used, turbojets and four-engine equipment will climb to 3,000 feet mean sea level on runway heading.

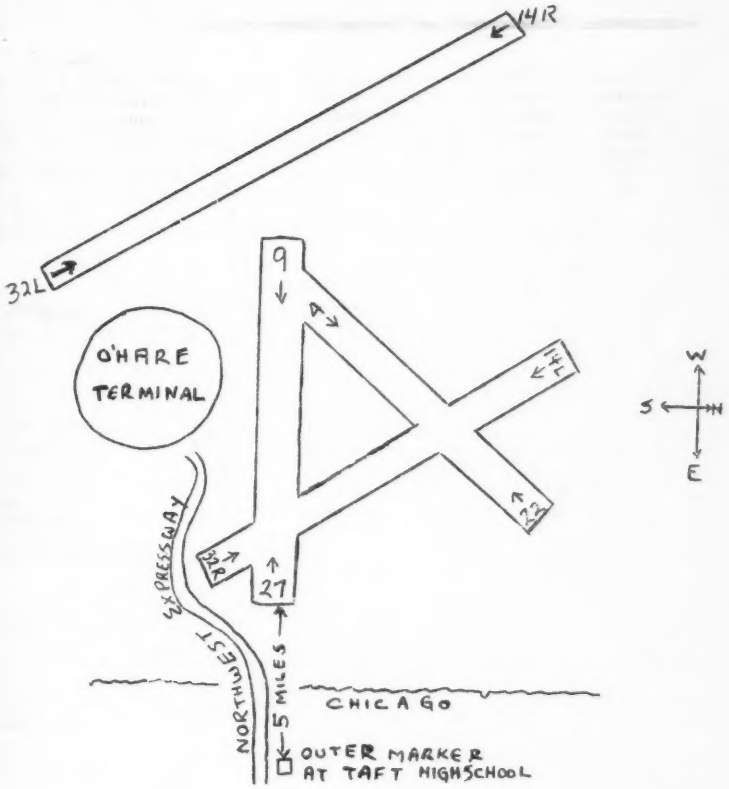
Runways 32–L, 32–R, or 27 will be used for eastbound turbojets, so they will be taking off away from the city.

Runway 32–L westbound turbojets and cargo flights will climb to 3,000 feet mean sea level on runway heading.

Arrivals

Runways 22 and 27 will not be used for turbojet landings.

The above procedures are used unless wind, weather, or runway closure require noncompliance.



BOARD OF EDUCATION,
CITY OF CHICAGO,
July 13, 1962.

HON. ROMAN C. PUCINSKI,
Congressman, 11th District, Illinois,
House of Representatives, Washington, D.C.

MY DEAR CONGRESSMAN PUCINSKI: Referring to our telephone conversation of Wednesday evening, July 11, 1962, the attached is our report and recommendations regarding the noise and nuisance created by low-flying aircraft within the northwest side area of the city of Chicago.

The courtesy that has been extended to us by you is sincerely appreciated. It is regrettable that we cannot be in attendance at the hearing in order to personally present our views on the aforementioned problems.

In the light of our absence we respectfully petition to have read into the record this attached report.

Sincerely yours,

ARTHUR J. LAPOINTE.

NORTHWEST FEDERATION OF IMPROVEMENT CLUBS

JULY 13, 1962.

The Northwest Federation of Improvement Clubs representing 30 community improvement and civic organizations within the area north of North Avenue and west of Western Avenue is seriously concerned with the apprehension manifest by the communities in and about the O'Hare International Airport and on the Northwest side of Chicago.

This concern directly affects the safety, well-being, and physical comfort of property owners and their properties in line with the existing and planned runways.

It is our unanimous opinion and concern that undue hazards to persons and property prevails.

This concern is not limited to the local area abutting the airport.

The increase in air traffic and the use of large jet intercontinental aircraft has increased the discomfort of those living in the Northwest side of Chicago.

On Sunday, July 8, 1962, noise levels of jet aircraft leaving O'Hare Airport in an easterly direction were recorded as high as 108 decibels at 2940 West Eastwood Avenue (4½ blocks east of Kedzie Avenue, 3200 West, 1½ blocks south of Lawrence Avenue, 4800 North) 10 miles east of the airport. This peak was reached at approximately 5:10 p.m., central daylight saving time, wind east 10 to 15 miles per hour, ceiling unlimited, visibility clear and unlimited, altitude of aircraft estimated 2,000 feet. The decibel readings on this day between 4 and 6:30 p.m., central daylight saving time, averaged 94 decibels. These noise levels were recorded with a General Radio Co. sound survey meter, type 1555–A, function switch set at C+30 decibel weighting, and attenuator level set at 80 decibels. Meter was set up on a tripod in a clear area eliminating reflector effects from nearby buildings.

Inasmuch as definite recommendations have been set forth for the establishment of airports by a commission set up by President Truman in 1952 of nationally recognized aviation and civil personalities, and that these recommendations are set forth in this report of the President's Commission, "The Airport and Its Neighbors," Government Printing Office, Washington, D.C., 1952, it is recommended—

I. That the basic philosophy for planning airports, and the establishment of air traffic corridors and traffic patterns be provided off the end of each runway for a straightaway distance of 3 miles, fanning out to a width of 2 miles. These corridors should be cleared of all buildings and leveled off. They could be leased for farming or park purposes.

II. That traffic patterns be established so that all aircraft taking off or landing should be channeled into a traffic pattern that will lie within 3 miles of the boundaries of O'Hare Airport.

III. That all aircraft not in the traffic pattern be kept over 3,000 feet of altitude when flying over congested area.

IV. That any extension of runways should be made away from congested areas; i.e., the proposed extension of the east-west runway should be in a westerly direction. This can be accomplished by acquiring additional land to the west and by depressing the railroad. The runway and taxiways could be made wide enough for safety and bridge the depressed railroad.

The large air-carrier planes have reached a size where the law of diminishing returns has set in, and their size should be limited because very few airlines ever carry a full load of passengers. The larger aircraft require more power and more speed, and the greater the speed the less the maneuverability. They are becoming so large that they require more power assist which is a major factor contributing to the noise and nuisance factor. (See article below from the Chicago Daily Tribune.)

ARTHUR J. LAPOINTE,
Chairman, Aviation Committee.

[Clipping taken from the Chicago Daily Tribune, July 14, 1962]

UNITED HAILS SUCCESS OF CARAVELLES

United Air Lines Caravelle jetplanes have carried more than 734,000 passengers in their first year of operation, the company said yesterday. Today is the first anniversary of Caravelle service in the United States.

In its first year, United's Caravelle jet fleet has flown 9,313,000 miles and logged 26,000 hours of flying time. The planes have flown 372,253,000 revenue passenger-miles.

The Caravelle has won such customer acceptance that many passengers make special requests to use it, when possible, United said. The load factor of its Chicago to Newark, N.J., flight has ranged above 92 percent. United's purchase of 20 Caravelles from Sud Aviation, French maker, for $65 million was thought to be the largest single transaction ever signed between companies of the two countries. The jet carries 64 passengers.

Mr. WILLIAMS. Before recognizing Mr. Bell, I would like to acknowledge the presence in the room, also, of our colleague on the Regulatory Agencies Subcommittee, Mr. Rostenkowski, who has also expressed a very intense interest in this problem. It is my understanding that his district also suffers from the noise problem in the Chicago area. He suggested that he would not care to be recognized for a statement at this time, but perhaps he will have something to say later.

At the time I concluded my opening statement, I do not believe Mr. Rostenkowski had come into the room.

Mr. Bell.

STATEMENT OF HARRY BELL, ALDERMAN, 41ST WARD, CHICAGO, ILL.

Mr. BELL. Mr. Chairman, I am appearing here today not only in my own behalf, but representing Alderman William Cullerton, of the 38th ward, and Alderman Philip Shapiro, of the 39th ward, whose wards adjoin mine, which is located immediately east of O'Hare Field.

We, perhaps more than anyone else in Chicago, are aware of the noise problem due to our proximity to this huge airport, which has been developed to its present size in recent years. What started out a few years ago as a minor annoyance has now become a problem of such proportion as to override other municipal problems in our area.

With the increasing volume of traffic at O'Hare Field, which has been accelerated due to the almost complete stoppage of air traffic at Midway Airport, we have become increasingly aware of this problem. Because of the fact that O'Hare Field is completely landlocked, plus the fact that the area surrounding the field encompasses some of the finest residential communities in Chicagoland, we are faced with this tremendous problem of noise generated by the increasingly huge volume of air traffic making use of this facility.

As a member of the Aviation Committee of the City Council of Chicago, I can assure you that every step possible has been taken, not only by the city council but by Mr. Downes, our commissioner of aviation, as well, to minimize this problem in those areas which lie within our jurisdiction, that is ground operations. We fully realize that the Federal authorities have jurisdiction over the actual air operations and are therefore coming to you in the hope that some measure of relief may be afforded those of us who live in the vicinity of O'Hare Field. I am not in a position to make specific recommendations in this regard, but I do feel that the Federal authorities, who are charged with the control of these operations can, in some way, assist us in bringing some measure of relief to the tremendous community of homeowners residing within the 6- or 7-mile radius of this field.

I know personally that I, who reside 5½ miles from the eastern limits of this field, find it impossible to carry on normal conversation when a plane passes overhead. I represent a population of well over 120,000 persons who live in an area subject to these conditions.

I am sincerely hopeful that, through the efforts of this committee, measures may be adopted to minimize this noise factor with which we are now compelled to live.

Thank you, Mr. Chairman.

Mr. WILLIAMS. Thank you very much, Mr. Bell.

There may be some questions on the part of members of the committee.

Mr. Rogers?

Mr. ROGERS of Florida. No questions at this time; thank you, Mr. Chairman.

Mr. WILLIAMS. Mr. Younger?

STATEMENT OF HON. ROMAN C. PUCINSKI, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS—Resumed

Mr. YOUNGER. Mr. Pucinski, you mentioned only about the landings. In what directions are the takeoffs?

Mr. PUCINSKI. I mentioned the 108-decibel reading on a plane taking off. When they take off on runway 9 or runway 4, they come over my district.

Mr. YOUNGER. Do they take off in the same direction as they land?

Mr. PUCINSKI. When the winds are prevailing from the east and they take off eastward, they take off on runway 9 and fly right over this congested area. Frankly, I have noticed from my own observations that the landing problem frequently is worse than the takeoff, because on takeoff they do get to higher altitudes rather quickly. There are exceptions, but normally they get out and get away pretty fast. But when they are landing, they hang right through this whole area here at 1,200 feet, and with the astrojets, turbojets, you can well imagine what a deafening noise that makes. They take off on Runway 9, which is the east-west runway, and on landing they come in this way, on runway 27. Here is the east-west runway of O'Hare Field. So we have a problem both on landings and on takeoffs, but it is my judgment that the problem stays with the people longer on landing, because the airplane is in the final flightpath longer on its final approach than on the takeoff. Let there be no mistake, however, the problem of impossible noise levels is with us whether they're taking off or landing.

Mr. YOUNGER. That would be the only field I know of where the landing pattern and the takeoff pattern are in exactly the same direction at the same time.

Mr. PUCINSKI. No; they are not. It depends on the wind conditions.

Mr. YOUNGER. Are both in the same direction?

Mr. PUCINSKI. When the airplanes are taking off, when the winds are from the east, and they are using runway 9 for takeoff into the wind, obviously then they are also landing from the west, into the wind.

We have no problem with landing aircraft when they are using runway 9 for takeoffs and landings because obviously under those

conditions, the landing aircraft came in west of Chicago and O'Hare Field. But I want to impress on the committee that when we have no problem from landing aircraft then we are hit hard by unbearable noise from aircraft taking off on runway 9.

Mr. WILLIAMS. Will the gentleman yield?

Mr. YOUNGER. Yes.

Mr. WILLIAMS. You are relating your testimony to the problem which is faced by your district, which is east of the field?

Mr. PUCINSKI. That is correct, sir.

Mr. WILLIAMS. I presume that others will testify as to the problem as it exists west of the field, north of the field, and south of the field?

Mr. PUCINSKI. I am reasonably certain of that, Mr. Chairman.

Mr. YOUNGER. The problem that I wanted to emphasize is that when you have the noise from the landing, you do not have the same noise from the takeoff.

Mr. PUCINSKI. You are absolutely correct.

Mr. YOUNGER. But you had not made that clear.

In your illustrations they were both landing and taking off in the same direction, which is rather new, a new process.

Mr. PUCINSKI. When our ears are being broken out of our heads by landing aircraft, we do not have any problems with the taking-off aircraft, but perhaps it is wise to point out here that because of the peculiar condition of the prevailing winds during the summer months, there are very few periods, very few days when we do not have a problem either because of landing aircraft or because of departing aircraft.

Mr. YOUNGER. That is all, Mr. Chairman.

Mr. WILLIAMS. Mr. Rostenkowski?

Mr. ROSTENKOWSKI. I have no questions, Mr. Chairman.

Mr. WILLIAMS. Mr. Collier?

Mr. COLLIER. I have no questions, Mr. Chairman, except I was very interested in the specific recommendations offered by my good colleague from Chicago. It raises the question in my mind that, as these might be adopted to some extent, while it might provide relief for some of the folks in the 11th District, it might compound the problem of the folks in my district.

For this reason, I think perhaps it would be wise to explore some of these recommendations with the airlines and the airline pilots.

While I am deeply sympathetic to the problem you have, Mr. Pucinski, I am at least equally sympathetic to the problem of my own district.

Mr. PUCINSKI. Congressman, if you will permit the observation, I do not think there is anything in the recommendations I made that attempts to dump our problems on somebody else. On the contrary, we all recognize that we all have problems, 360° around O'Hare Field. So it is not our intention at all to say "Get rid of it in our area and give it to somebody else." But by extending the final landing approach into Lake Michigan, and starting the final landing approach from a much higher altitude, as I suggested, over my district we would reduce the noise factor. By moving the props back to Midway and reducing the traffic at O'Hare Field, we would help everybody, not only the people of the 11th District.

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Mr. COLLIER. I understand. I certainly did not mean to imply that the gentleman is without regard for the problem in the 10th Congressional District.

I am aware, of course, of circumstances that require stacking up, and that the simplicity of the solution of earlier ascension, for example, is one which might have a very direct bearing upon the problem as it would affect the landings from different directions on the other runways which specifically affect the residents of my district.

That is all I have, Mr. Chairman.

Mr. WILLIAMS. Mr. Jarman?

Mr. JARMAN. Mr. Chairman, I have one question for Mr. Bell.

In your statement, you indicate that you are not in a position to make specific recommendations as to curing the O'Hare problem but you say, "I do feel that the Federal authorities who are charged with the control of these operations can, in some way, assist us in bringing some measure of relief to the community.

My only question would be as to whether you have any suggestions or recommendations to make to the committee.

What we are searching for is some practical answer to exactly the problem that has been described at O'Hare.

Mr. BELL. I would say that some of the solutions suggested here today should be explored. I can only attest as to the problem as it exists there, Mr. Congressman.

Mr. ROGERS of Florida. As I understand it, some changes have been made by your airport authority and the FAA to try to improve the problem, is that correct?

Mr. PUCINSKI. Mr. Rogers, in the appendix of my statement is a statement on the procedures, showing the various changes that have been made. For instance, on night-time operations, the FAA has barred takeoff and landings from 11 at night to 7 in the morning, except where weather conditions will not permit the use of any other runways. They have established a preferential runway program. So in the appendix of my statement you will find the procedures that have been incorporated to try and remove the problem.

Frankly, as I said at the outset, if these procedures had not been adopted, the problem today would be vastly worse than it is.

Mr. ROGERS of Florida. There has been some improvement on what has been done?

Mr. PUCINSKI. Yes.

Mr. ROGERS of Florida. Where is the holding area for these planes before they land?

Mr. PUCINSKI. I believe we have a map here, Mr. Rogers, but there is one known as White Fish out to the northeast of Chicago and there is one out to the northwest.

Mr. ROGERS of Florida. Is it over a populated area?

Mr. PUCINSKI. No. As far as the holding patterns are concerned, they are not over populated areas. I think perhaps Mr. Niles, the FAA Director, will be able to give you a map showing you the exact locations. Some holding areas are over populated areas and some are not.

Mr. ROGERS of Florida. In the approach that you mentioned, it looked like there was a highway or something. Is that a highway that goes almost directly to the runway?

Mr. PUCINSKI. Yes, and we have been pleading with the airlines, the pilots, and everybody else about this. This is an eight-lane expressway which cuts right across this whole area of Chicago and requires a very slight deviation, of course, to get on the runway.

We have pleaded with the pilots and with the airlines and everybody else to have these airplanes come in over the expressway where they would create the minimum of nuisance.

We find that pilots, though, insist on using the expressway as a guide instead of flying over it.

This is why I recommend that this committee recommend that the FAA go to radar vector control as quickly as possible. They have the instrument guides, but they have 2,000 or 3,000 feet of leeway, both to the right and the left of that. So these fellows are all over the place. Sure, they have a natural corridor to come into O'Hare Field and cause a minimum of disturbance to my people, if we could keep them flying over this expressway, but you cannot get them to do it. They either want the expressway out the right window or the left window and they use that as the guide instead of flying over it.

Mr. ROGERS of Florida. There is no danger, I do not suppose, if you insisted on that, that there would be any confusion in snow or in heavy fog of coming down on that highway rather than the airport?

Mr. PUCINSKI. No, I do not think so.

Mr. ROGERS of Florida. It is far enough away from the location of the airport?

Mr. PUCINSKI. For the simple reason that we have installed the most modern—the FAA and the city of Chicago—the most modern lighting systems known to man. I doubt very much that even under the most adverse kind of conditions could this possibly happen.

Mr. ROGERS of Florida. You do not think that could be a danger?

Mr. PUCINSKI. No, sir.

Mr. WILLIAMS. Mr. Devine?

Mr. DEVINE. I am not sure that you can answer all of these questions, Mr. Pucinski, but to acquaint ourselves with the situation on these aerial maps, I presume the right-hand side of the map is east?

Mr. PUCINSKI. Yes, sir.

Mr. DEVINE. How far is Lake Michigan from O'Hare, roughly?

Mr. PUCINSKI. Fifteen miles to 20 miles.

Mr. DEVINE. That would be to the extreme right?

Mr. PUCINSKI. Lake Michigan would be off the photograph.

Mr. DEVINE. Do you happen to know what the prevailing winds are at O'Hare the majority of the time? Are they from the west, the northwest, or do you know?

Mr. PUCINSKI. We have Mr. Downes here.

Mr. DOWNES. The prevailing winds in the Chicago area are from the southwest and the northeast.

Mr. DEVINE. When the prevailing winds are from the southwest, would they generally use runway 27?

Mr. PUCINSKI. We have this long runway, 32–L and 14–R, which normally would be used for southeast-northwest winds.

Mr. DEVINE. Which runway gets the majority of the landing traffic?

Mr. PUCINSKI. One of the great problems and this, again, if you want a constructive suggestion, this is something that the committee may want to look into, there are no records kept by the FAA on the

frequency of use of runways. They keep records. They keep the telemeter material, but these are never compiled. So I doubt very much, and I will be very happy to be corrected, I doubt very much if Mr. Niles will be able to tell you how often they use 32–L, how often they use 14–R, how often they use 27 or 9. I doubt if they can tell you the frequency of use of runways.

I do not know, Congressman.

Mr. DEVINE. I would suggest that would be a rather important statistic to know.

You say in your particular area the landings are probably more noisy than the takeoffs. That surprises me. I know the airport that is in my district uses the east-west runway about 95 percent of the time.

Mr. PUCINSKI. It would seem to me, from my own personal observation, that is just about what exists in Chicago. We use the east-west runway, I think, more often than the others. But perhaps the FAA wants to refute that statement.

This committee should be interested to learn, however, that they do not keep any running records of frequency of use of runways. There is no way I can find out whether the preferential runway system adopted by the FAA is actually being carried out.

Mr. ROSTENKOWSKI. Will the gentleman yield?

Mr. DEVINE. I yield.

Mr. ROSTENKOWSKI. Is there not an organization checking at the end of a runway in the O'Hare vicinity the noise and the amount of landings taking place at O'Hare?

Mr. PUCINSKI. Yes, Congressman, and I believe they are going to testify, the group from the city of Park Ridge. They maintain such a unit.

Mr. ROSTENKOWSKI. But you say that the FAA keeps absolutely no records of landings on particular runways at O'Hare or at all airports.

Mr. PUCINSKI. As of March 18, when I had a meeting in my district, and I requested a breakdown of the frequency of use of runways so that we could ascertain to what degree is preferential runway program instituted by the FAA being used, as of March 18, on that day, I was told that there are no records of that nature kept.

I asked why, and they said, "Well, there is an additional cost involved, more bookkeeping."

I said, "Well, it would appear to me that it is extremely important for the FAA and for the local community to know the frequency of use of runways to see whether or not these preferential runway programs are considered.

"I want to know if an airplane takes off at 3 o'clock in the morning and shakes up the whole community.

"Here they have an FAA regulation that you are not to use this runway from 11 at night until 7 in the morning. I would like to know how often is that runway used from 11 to 7 so I can then check with the Weather Bureau and see whether or not the winds for that particular day justified the use of that runway or could they have used some other runway."

But this we do not have.

Mr. ROSTENKOWSKI. Is this isolated only to O'Hare International Airport or is this at all airports in the country that the FAA does not keep any records on that?

Mr. PUCINSKI. Congressman Rostenkowski, I do not know.

My inquiry was about O'Hare, but I have a feeling that, on the basis of the practice at O'Hare, that this is probably a nationwide practice, where they do not keep the statistical analysis. They do have the tapes, you know, but those tapes tell you nothing unless you wanted to start digging for something specific.

Mr. DEVINE. I believe we can develop this further, Mr. Chairman, with an FAA witness.

Mr. WILLIAMS. Mr. Springer?

Mr. SPRINGER. May I ask the distinguished gentleman from Chicago this question: At the time this airport was built, was any study made to determine the impact of noise in that area?

Mr. PUCINSKI. Congressman, perhaps Mr. Downes will be able to answer this question better, or perhaps our very distinguished alderman, the chairman of the aviation committee, Mr. Eagan. It is my understanding, however, that this field was originally developed as part of the war effort, as part of the Douglas plant. I do not think at that time those were factors that were taken into consideration because we were trying to win the war.

I could not tell you, Congressman, whether or not there were any surveys made subsequently. I do not know.

Mr. SPRINGER. There surely must have been some survey with reference to piston noise, was there not?

Mr. PUCINSKI. This, again, I think perhaps either Mr. Downes or one of the other witnesses would be in a better position to answer than I would.

Mr. SPRINGER. What is the nearest sizable residential area to O'Hare Field?

Mr. PUCINSKI. I can tell you within my district. I would have to leave to the others a complete answer.

As far as my district is concerned, here you have Cumberland Road, the edge of runway 27, which would be roughly 3 miles, not quite 3 miles.

Mr. SPRINGER. Are there not, though, some residential areas closer?

Mr. PUCINSKI. Yes, very small pockets. I am talking only directly east of runway 27. There are, as you can see from this aerial photograph, a series of houses shown, and I know at this end of the picture, Bensenville, it may be closer, but as far as east of this particular runway that I am testifying to today, it is not quite 3 miles directly east.

Mr. SPRINGER. Did you say that one of the Board of Commissioners of Cook County is here?

Mr. PUCINSKI. Alderman Eagan, the chairman of the city council aviation committee is here, and Mr. Downes, the manager of O'Hare Field is here, the airport director for Chicago is here.

Mr. SPRINGER. Is any member of the county board of commissioners here?

Mr. PUCINSKI. Not to my knowledge; no, sir.

Mr. SPRINGER. Do you have, Mr. Pucinski, county zoning?

Mr. PUCINSKI. Do we have a zoning ordinance in Cook County?

Mr. SPRINGER. Yes.

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Mr. PUCINSKI. Yes, we recently adopted one. I am not sure we had one in existence to the extent we now have when O'Hare Field was developed.

Mr. SPRINGER. Was this enacted by the city of Chicago or by the county board of commissioners?

Mr. PUCINSKI. The establishment of O'Hare Field?

Mr. SPRINGER. No, the zoning.

Mr. PUCINSKI. By the county board.

Mr. SPRINGER. Have they zoned any of this area about O'Hare Field?

Mr. PUCINSKI. I do not know, Congressman.

Mr. SPRINGER. This is very important. I am writing a letter today to the chairman of the county board of commissioners with reference to this entire matter.

You will recall a few weeks ago when we were having hearings on Dulles International Airport at Chantilly, the chairman of this committee made a statement to the county board of commissioners in Fairfax County that there should be great hesitation about zoning and also land development in the area of Dulles Airport unless it fitted in with the noise problem.

Mr. PUCINSKI. Congressman, if you will permit the observation, I regret you were not here earlier in my discussion, but whatever zoning the county wants to engage in now or would have engaged in at the outset would not have resolved this problem because this problem with jets goes much further. In other words, here are areas 7, 8, and 10 miles removed from O'Hare Field that are today suffering these big 707's and DC–8's flying at 1,200 feet altitude, and it is unbearable. You cannot hear yourself talk. Zoning would not have helped this situation.

What has happened is that the big jets need a lot more area for their takeoff and landing than had ever been anticipated, even by the Doolittle Committee.

Mr. SPRINGER. Will you point out the northwest expressway?

Mr. PUCINSKI. Yes, sir.

Mr. SPRINGER. And where is downtown?

Mr. PUCINSKI. The northwest expressway shoots right into the Loop.

Mr. SPRINGER. Now trace it on out to the airport, with your finger, would you?

Mr. PUCINSKI. Yes, sir, going out to the airport along the expressway, you go from the Loop and then go straight west to O'Hare Field.

Mr. SPRINGER. Now, would you go back about the width of your hand, on the east side. Now, about where your thumb is, is there not already and are they not now building residential subdivisions in those areas?

Mr. PUCINSKI. No, sir, I do not believe so.

Mr. Downes, who is here, and who represents the airfield, I think can answer that question much better; but I do not think so.

Mr. SPRINGER. The other day in coming in, and I am almost sure I am right about this, on the south side of the highway, in that general area, there is now being developed a subdivision. I am not positive, however.

Mr. PUCINSKI. Congressman, if I may make this observation, if you look at this map you are probably referring to the area I am now pointing to. You are correct, they are building some subdivisions there, but keep in mind that this is at least 3 miles from the airfield. This is consistent with the Doolittle Committee recommendations.

Mr. SPRINGER. What committee?

Mr. PUCINSKI. The Doolittle.

Mr. SPRINGER. The Doolittle Commission is almost passé.

Mr. PUCINSKI. Yes, sir, I said earlier their recommendations are obsolete.

Mr. SPRINGER. In fact, the studies of the Doolittle Committee would hardly be applicable to today's situations.

Mr. PUCINSKI. Sir?

Mr. SPRINGER. They would hardly be applicable to today's situation.

Mr. PUCINSKI. Yes, I have said that earlier.

Mr. SPRINGER. The reason I raised this point was not to minimize what the noise does. I have been in this thing for 3 years, since jets got started, in Los Angeles and New York. We have been to New York and had hearings on it. But the point that surprised me was that no warning is being given by the people who ought to be responsible for this. There ought to be zoning in conformity with the city which will take into consideration the noise.

At the present time, we do not have any solution to that problem.

Mr. PUCINSKI. Congressman, I agree with you to that extent, but this problem now is affecting communities like Edgebrook, Edison Park, Norwood Park, Albany Park, 10 miles removed from the airfield. The communities have been there for 20, 30, and 40 years. So what can we do with these people? I agree with you if anybody is foolish enough to buy a house in the shadow of O'Hare Field, he is not going to find very much consideration from me at least, and I am sure not from this committee, the FAA, or anybody else, because he ought to apply caveat emptor, he should know better.

But I am talking about these people who have lived here in these established communities in Chicago 10 to 12 miles east of O'Hare for 30 and 40 years.

Mr. SPRINGER. I want to come back to one other point.

Have you made any study of the patterns of airplanes approaching O'Hare where they are delayed for 15 to 30 minutes? Have you asked for any pattern on that?

Mr. PUCINSKI. Yes. They are held in the holding areas.

Mr. SPRINGER. Can you describe the holding areas on your photograph?

Mr. PUCINSKI. No on this photograph, Congressman. I think Mr. Hines will probably have charts with him showing you the holding areas.

Mr. SPRINGER. To save you the trouble, I have a chart here of it.

Have you analyzed this enough or sufficiently to know whether or not this noise is caused by jets from approach or from holding areas?

Mr. PUCINSKI. Not from holding areas, Congressman. We have had no particular complaints, at least in my district I have not had any complaints about holding areas.

The noise primarily is on final landing approach and turning in to the final approach, and on takeoff.

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Mr. SPRINGER. How much approach do you have to have to go in?

Mr. PUCINSKI. The approach runs, 10, 12, 15, miles. Some of these boys start way out over Lake Michigan. But many start their final approach 5 miles from the field, here at Taft High School.

Mr. SPRINGER. Over the middle of Lake Michigan?

Mr. PUCINSKI. Yes. And when they are landing on runway 27, they come clear across the whole width of Chicago, from Lake Michigan all the way out to runway 27.

Many of these boys come in high enough where they do not disturb anybody.

Mr. SPRINGER. You are talking about jets now?

Mr. PUCINSKI. Yes. If these jets would confine themselves to the minimum 1,500 feet at the outer marker, which is 5 miles east of runway 27, perhaps even then we could endure this thing. However, our problem is that these fellows very frequently come in below 1,500 feet.

Mr. SPRINGER. Have you taken it up with FAA as to why they cannot approach at 1,500 feet?

Mr. PUCINSKI. Do what, sir?

Mr. SPRINGER. Have you taken up with FAA to find out why they cannot approach at 1,500 feet?

Mr. PUCINSKI. I am sure Mr. Niles will tell you this is one of the biggest problems. We have no way at this stage of the art to challenge a pilot when he says, "I was at 1,500 feet," and 10,000 people below say he was at 800 feet or 900 feet or 1,000 feet. It is his word against the complaining witnesses.

In the absence of 3–D radar or in the absence of any other scientific or mechanical equipment——

Mr. SPRINGER. Does the FAA have the rule on O'Hare with reference to the minimums?

Mr. PUCINSKI. Yes, sir.

Mr. SPRINGER. What is it?

Mr. PUCINSKI. Would you like to refer to the rules in the appendix?

When O'Hare weather is reported having a ceiling of 2,000 feet or higher and visibility three miles or more, westbound traffic departing on runway 32L make a left turn as soon as practicable after takeoff. When the reported weather is less than the above, the departures maintain takeoff heading until reaching 2,000 feet above the ground.

We have a special situation in Chicago where we have regulations requiring that they maintain a minimum of 2,000 feet. Many other airports in the country require only 1,500 feet minimum. We require 2,000 feet minimum as long as possible, weather permitting.

We maintain that this is not being done by the pilots, and at this stage of the art there is no way for the FAA, other than to put monitors, as I have suggested, at the end of runways or using a system like the village of Park Ridge is using, where they have their own equipment, FAA has no way of determining from the tower whether this fellow is at 2,000 feet, but the regulations do require him to be at 2,000 feet as long as possible. We say he is not living up to that regulation.

The regulation also requires him to climb up to 2,000 feet as quickly as possible. We say they are not climbing to 2,000 feet as quickly as possible.

Mr. HEMPHILL. Will the gentleman yield?

Mr. SPRINGER. After this one question.

When you say those words, are you applying that to jet craft or to both types?

Mr. PUCINSKI. Congressman, we have very little problem with the propeller-driven airplanes. I am confining myself to jets.

Mr. SPRINGER. I will yield.

Mr. HEMPHILL. You say 10,000 people will say the pilot is at 800 feet?

Mr. PUCINSKI. I am using that as a colloquialism, Congressman. I do not know how many complaints the FAA gets on any one particular disturbance, but from what the boys tell me in the tower, they get a lot of complaints.

Mr. HEMPHILL. Even as a colloquialism, the pilot has an altimeter. People do not give him credit for this fact, but he wants to live, too.

The pressures are given to him by the clearance authority, either the FAA clearance authority or the local traffic authority. When the pilot says "I was registering 1,500 feet," and 10,000 people colloquially say "No, you were at 800 feet," if they say that, why do you not measure it?

Mr. PUCINSKI. How can you measure it from the ground?

Mr. HEMPHILL. I think there are a number of ways.

Mr. PUCINSKI. I think the village of Park Ridge will testify that they have triangulation devices, but you would not expect the average man in the street to have that facility.

Mr. HEMPHILL. Have you taken this up with the pilots' association?

Mr. PUCINSKI. Yes, sir; we have discussed this problem with the pilots' association, the pilots take the position they are doing the best job they can.

Mr. HEMPHILL. I know the gentleman must be familiar with the fact that a fellow bringing in a 707 or 880, one of these big jets, has terrific problems. He has people on there, and he has to get the bird down. He is at about 150 or 160 knots. He may be coming down through traffic. He is also vectored in more than you think he is vectored in because he is giving a heading from his holding pattern down to the ILS runway or whatever runway he is using.

It has been my limited experience sitting in the cockpit with some of them, that they are not anxious to get very low. It concerns me because I went into Chicago twice in the last 5 or 6 days. On one occasion I wondered what the pilot was doing, and found out he was swinging around trying to keep from going over the area. We could see that from the cabin position we were in. It was not because we were on there. We were not even supposed to be on that particular plane, to my recollection. That was on the landing pattern. At the takeoff pattern and the 2,000 feet, I imagine the pilots will tell you, and I can say this from some familiarity, that the pilot would be happy to get to 2,000 feet just as quickly as he can, because he gets that cushion under him and has a measure of safety.

So, it concerns me that you say the pilots say one thing and the people say another because the guy flying that bird out there can have his license taken away or be grounded or suspended or he gets in dutch automatically when he breaks FAA regulations.

Are you saying that the pilots are breaking regulations or not?

Mr. PUCINSKI. No; I do not say that they are breaking regulations, but I do not think they are bringing in their airplanes in a method that reduces the noise factor.

The best example of that, Congressman, is when you can stand at the Taft High School campus, the outer marker, 5 miles from the field, and you can see four airplanes come in, both 707's and DC–8's in a manner that produces a minimum of disturbance to the community.

Then within the next 2, 3, or 5 minutes, you may see two or three guys come in and really shake up the whole community.

They are all flying the same aircraft and reasonably the same loads.

Mr. HEMPHILL. Are they flying at the same altitude?

Mr. PUCINSKI. No. This is the thing that disturbs the people of this community.

Mr. HEMPHILL. How much difference in altitude?

Mr. PUCINSKI. I would say variances of as much as two, three, or several hundred feet. At that critical stage, it makes a big difference.

Mr. HEMPHILL. I thought you said at 800 feet a while ago.

Mr. PUCINSKI. I have seen them come in, from my own observation at what in my judgment, without the use of triangulation devices would appear to be below 1,000 feet at the Taft High School campus, where they should be at least 1,500 feet and no less than 1,200 feet.

Mr. HEMPHILL. Of course, if he is below 1,500 feet, which you know from your experience, turning one of those big birds takes about 3 or 4 miles.

Mr. PUCINSKI. Yes, sir.

Mr. HEMPHILL. I would imagine it would sometimes take 10. At least, when you are flying at altitude with one of them, and you see a guy off there at 30 miles, everybody gets the jitters and wonders if they have time to turn or not.

Of course, with the safety factor, you know the boys bringing these birds in are trying the best to get them in. You have a terrific safety factor. You know the load factor varies with the consumption of fuel, even his landing speed or his landing roll. The approach pattern must necessarily vary somewhat. That part worries me about your statement.

The next thing I understood you to say was that you had made a proposal to put the propeller craft back into Midway; is that right?

Mr. PUCINSKI. I would like to see them go back to Midway.

Mr. HEMPHILL. Did you protest the closing of Midway?

Mr. PUCINSKI. Yes, I protested it.

Mr. HEMPHILL. Did you take the position at that time, "Do not close Midway because we have this problem out here which may have some partial solution by putting propeller craft at Midway"?

Mr. PUCINSKI. The mayor of Chicago made frequent statements urging the airlines not to move their prop operations to Midway.

May I go back, Congressman, to one thing that you brought up, and you are so absolutely correct—it is the heart of the whole problem. You have put your finger on the guts of the whole problem. It takes a lot of space to turn one of these big 707's, especially when you are working in a critical area of 1,500 feet. It takes a lot of power. This is where all this noise is generated. This is why I have proposed to FAA that instead of having these fellows turn into that final landing approach at the outer marker, which is 5 miles east of

O'Hare Field, to shoot these boys out into Lake Michigan 20 miles away from the field, and let them make their turn there at an altitude of 5,000 or 6,000 feet, and commence their final approach 20 miles back so that there is no turn, no violent changes in power settings. You can then have this fellow come down in a gradual glide slope. He can be using minimum power, merely to maintain his safety standards and altitude. But he would not have to be applying maximum power in this 90-degree turn that you have well described, over this highly congested area and creating all this noise.

I am hopeful that this committee will study this recommendation. You have expert pilots on the committee.

Then I hope that you will include this in your recommendations.

Mr. HEMPHILL. With the traffic you have out there, the question of bringing everybody in from 20 miles on the lake is quite a problem, because you have so much traffic; plus, I do not believe, the ILS runway does not go out over the lake.

Mr. PUCINSKI. Extend it.

Mr. HEMPHILL. The ILS runway on 27——

Mr. PUCINSKI. Congressman, what is the difference whether they have a 20-mile final approach or a 5-mile final approach. They have all this room out there.

Mr. HEMPHILL. It makes a good bit of difference when you are on instrument conditions and you have to get that bird down. If there is another guy sitting up there 2,000 feet above you, he has to get down. You have people stacked up 15,000, or 16,000 feet, or heaven knows how high. You can back them up down the line, but if you do, you will ruin the air transportation at Chicago, a wonderful thing there, the air transportation.

If you change the pattern too much, I think you will back them up along the line where you will not have planes coming in, I think it is, every 60 seconds.

Mr. PUCINSKI. But you are doing it now. You have them stacked up there for 45 minutes.

Mr. HEMPHILL. They are doing it now. As far as the efficiency of getting them up and down is concerned, you have not attacked that, nor has anyone else. But one of the problems is the efficiency of the operations, so far as jet transportation in and out of O'Hare Field in Chicago is concerned.

I think that is a consideration that has not been treated here.

If you have as much traffic as you seem to have, if you go out there and sit and watch, you have quite a traffic problem in getting the boys on and off the ground. You have conventional aircraft, the piston type, two and four engines, and you have these big jets. You have some military, and you have the little Pipers and everybody else out there.

I imagine the trick chiefs in the towers out there really do a day's work in the 8-hour span they have.

While I like your suggestion, I do not want to take your suggestion of going out over the lake and saying "Here is a solution," which might appear to be a solution on its face, when you and I know that the traffic conditions will not let everyone go out over the lake and make a turn and come back. The guy coming from Los Angeles does not want to come across the top of traffic and go out over the lake, if he can help it, until he is ready to let down.

Mr. PUCINSKI. Let me ask you this final question, then, Congressman. What is the difference whether this fellow is flying 10 minutes longer or 5 minutes longer in the holding pattern, wherever the holding pattern may be, because he is waiting for a clearance to get in on a final approach, what is the difference whether he is spending that time in a holding pattern or whether he is spending that time in a longer final approach?

All we are saying is extend the final approach further east so that this fellow will not be making the very turns that you described, and properly so, over this area 5 miles away from the airport over a congested area of my district. Let him make that turn 20 miles east of the field. He is in a holding pattern. He may be there 45 minutes, he may be there 50 minutes, he may be there 30 minutes, he may be there an hour. I say that by extending the final leg you have not saved anybody any time, nor have you cost anybody any time.

Mr. HEMPHILL. I do not agree with that statement. It is not that I do not believe in our sincerity, but from a traffic standpoint it may not be practical. I am not saying that is disparagement. There are other factors which I will not discuss because it would take too much time, but the problem, as I see it, and I also want to take issue with something else, is if the prevailing winds are southwest and northeast, as has been indicated here, what you have is your best runway going southeast and northwest.

Mr. PUCINSKI. It is our best runway.

Mr. HEMPHILL. And apparently that was designed to take care of the noise-abatement problem and was not designed to go into the prevailing wind, if the prevailing winds are as has been stated here.

Why was that runway designed in that way if the prevailing winds are at 90 degrees variance, according to the testimony?

Mr. PUCINSKI. Congressman, if you will look at the long runway in the photograph, you can see it in proportion to the other runways, it was properly designed as the longest runway because those are the prevailing winds.

Mr. HEMPHILL. I thought someone said the prevailing winds were northeast and southwest. They did say that, did they not, Mr. Chairman?

The prevailing runway directions are northwest and southeast. Thirty-two means 320°, which is northwest. Fourteen means 140°, which is southeast, as you well know. So it looks like to me there is mixup here. You have an ILS on approach 14. Is that right?

Mr. PUCINSKI. Yes.

Mr. HEMPHILL. And you also have an ILS on your parallel short runway 14. You have an ILS on 27. You have not got it on 9. You would not have an ILS across an ILS?

Mr. PUCINSKI. It is my judgment, Congressman, that the northwest-southeast runway is consistent with the prevailing winds.

Mr. HEMPHILL. I am not saying that, because somebody said the winds were southwest and northeast. That is 90°.

Mr. DOWNES. In the whole Chicago area, the prevailing wind is from the southwest, but it jumps all over the clock, as you know.

Mr. PUCINSKI. There is your answer. Chicago is the Windy City, you know. We really do not know where those winds are going to come from in the next second, and this is the problem we have. I think this merely compounds the problem at O'Hare.

Mr. HEMPHILL. I am just wondering about one other thing. I am sorry to take so long, but I am interested in this problem. I was in New York some time ago and I did get to go to some other places. As you know, a fellow bringing in an airplane for a landing, especially if he is in snow, for example, or anything else, and he is trying to get in, you know you can go around the traffic pattern 10 miles and you might not make the same pattern every 1 of the 10 miles even though you are doing your best to be a perfectionist.

I wonder if one of the problems posed is not a problem of human nature.

Every guy is trying to bring in the bird as well as he can, but he has a lot of factors, wind conditions, weather conditions. He may have other factors. He may be sitting up there in a holding pattern expecting a 10-minute clearance and all of a sudden the air clears under him and for some reason or another some guy decides to go the other way or gets through a hole or something, and control tells him, "Come on in now." He has to get down because everybody else is stacked up there and they are flying all around. That forces on him necessarily a quick decision and, as you know, a quicker pattern than he would ordinarily have.

I wonder if that has not something to do with the fact of variances in altitudes and variances in perhaps even direction up to the limits that you described of 3,000 feet on each side of the desired line of approach?

Mr. PUCINSKI. I think you are absolutely right, Congressman. You are dealing with weather. Weather is unpredictable. I think airline pilots have vastly greater problems than a train engineer. You cannot predict every moment that you operate what you will do. I think this is why I recommended that the FAA install vector radar control into O'Hare as quickly as possible to remove as much of the human judgment as possible from this area.

Mr. HEMPHILL. What is their reason for not doing it?

Mr. PUCINSKI. I think they are doing it. They have just completed their very successful experiments in Atlanta.

I think it is perhaps a case of money and perhaps a case of acquisition of equipment.

It is my understanding that the FAA is planning to install radar vector control at O'Hare in the very near future. This is very encouraging.

Mr. HEMPHILL. Thank you.

Mr. WILLIAMS. Mr. Springer?

Mr. SPRINGER. I want to ask one further question.

Is anything being done about the zoning of this area around O'Hare Field?

Mr. PUCINSKI. Congressman, I would obviously prefer that someone in a greater degree of authority than myself would answer that question for the simple reason that this is really way out of my realm.

But I may offer this personal observation: You have there in the immediate area of O'Hare Field several villages: Schiller Park, Bensenville, Des Plaines, various other incorporated communities, which, of course, will control their own zoning requirements and regulations.

Then you have the unincorporated areas of the county, and I am sure that the county has, in most recent years, adopted a comprehensive

zoning ordinance for the county. So it would be my guess that the answer to your question is yes, although I really am not the authoritative source to make that answer.

Mr. SPRINGER. Do you or do you not know whether or not this area has been rezoned, or has it been zoned?

Mr. PUCINSKI. It is my recollection that it has been rezoned under the comprehensive zoning ordinance adopted by the county within, I believe, the last 18 months or 2 years.

Mr. SPRINGER. Now, in the area not including Elmhurst, Melwood, Schiller Park, and so on, those incorporated places, how is the area zoned for, say, 3 miles on each side of the airport?

Mr. PUCINSKI. I am afraid I would not be in a position to answer that question.

Mr. SPRINGER. Can you refer that to someone here who can give me the answer?

Mr. PUCINSKI. Senator Strunck can perhaps offer an answer.

Mr. SPRINGER. Would you identify yourself?

STATEMENT OF JAMES E. STRUNCK, ASSISTANT CORPORATION COUNSEL, CITY OF CHICAGO

Mr. STRUNCK. James E. Strunck, assistant corporation counsel for the city of Chicago and in the legislature representing part of this district to the east.

On zoning, basically, to answer your question, what existed prior to the transfer of traffic, the old villages, Schiller Park, Des Plaines, the surrounding villages, were zoned as they were, largely residential.

Mr. SPRINGER. Up to this point you are talking about the villages and cities that are presently incorporated, are you not?

Mr. STRUNCK. Yes.

Mr. SPRINGER. Now let us go to the areas that are not incorporated, that are open land.

Mr. STRUNCK. The areas that are unincorporated, as the Congressman said, were made the subject of a comprehensive county zoning ordinance, which I think is the only county zoning ordinance presently in effect in Illinois.

It was largely concentrated on either the existing use, which was then farming, and in instances I think most of the rezoning is in manufacture. I think most of the villages out there, and the mayor is here to testify to it, in their recent annexations most of their zoning has been in manufacture. I do not think that your new zoning is a problem as far as airport operations are concerned.

Where the complaints come from would be from the older areas which are residential and which existed prior to the operations of the jets into O'Hare Field.

Mr. SPRINGER. Let me ask you this, Senator Strunck.

Do you have anything to do with the question of zoning in the county?

Mr. STRUNCK. No, sir, I do not, but we did recognize a rather, shall we say, complicated political problem arising with the zoning in the neighborhood of the airport, and we amended the statute down there to, shall we say, superimpose a State zoning, an overall State aviation zoning, over and above the zoning of the counties and surrounding villages.

Mr. SPRINGER. Is that the law in Illinois now?

Mr. STRUNCK. It is the law, and it is my understanding that the State department of aeronautics will, in the near future, undertake to hold public hearings.

Mr. SPRINGER. On the question of zoning in the area of O'Hare Field?

Mr. STRUNCK. Yes, sir.

Mr. SPRINGER. Now, approximately when do you expect those hearings to be held?

Mr. STRUNCK. That I could not answer.

Mr. SPRINGER. This year?

Mr. STRUNCK. No, I could not answer that, sir. I would assume it would perhaps be this year, but I could not answer.

Mr. SPRINGER. This will be mighty important.

Would you inquire of the State commissioner of aviation when he intends to hold those hearings and would you have him write a letter to this committee telling us how comprehensive those hearings will be and when, approximately, he intends to hold those hearings?

You understand, Senator, why I am asking all of this?

Mr. STRUNCK. Yes, sir.

Mr. SPRINGER. You can make this situation worse, which was just what was in danger of happening over here at Dulles Airport, until the chairman of this committee made a statement on Tuesday, June 19, in the Congressional Record, advising the Board of Commissioners of Fairfax County to be extremely careful of this question of zoning in the area of Dulles Airport. They can meet the problem because Dulles is not in use. But you fellows already have the impact with you.

The point I am trying to bring out is that we should not make the situation aggravated and worsened because O'Hare is there to stay, regardless of what happens to the rest of the land. O'Hare is there to stay. At least, we can alleviate the problem which may appear, if nothing is done about this, 5 years from now or 10 years from now, through a lack of understanding by the county board of commissioners and the State department of aviation with reference to this problem. That is why I bring this up.

Mr. STRUNCK. Congressman, I would interject one thing, if I may. With all of the recent zoning in the vicinity of O'Hare Field, taking Du Page County, which includes part of O'Hare Field, and then borders O'Hare on the west, I think all of the zoning out there, as far as Bensenville is concerned, which is the next large area, has all been zoned manufacturing.

Mr. ROSTENKOWSKI. I would like to address a question to Senator Strunck.

Due to the enactment of this particular piece of legislation, with respect to the authority of the aviation agency working out zoning patterns, how far does this authority from the airport go in miles?

Mr. STRUNCK. Under the present statute, Congressman, I think you may well find it limited to 2 miles.

Mr. ROSTENKOWSKI. Then, Senator, the problem that exists in Congressman Pucinski's district would still prevail if these people are coming in at 1,500 feet or coming in on a landing pattern of 1,500 feet and 5 miles out?

Mr. STRUNCK. Yes, sir, absolutely.

Mr. ROSTENKOWSKI. So the authority of the aviation agency in the State of Illinois should even be extended so far as zoning around an airport is concerned.

Mr. STRUNCK. Yes, sir. As I understand it, the State Zoning Act, which is presently in effect, is the old model act which the State officials originally prepared a few years back to present to the various legislatures throughout the United States, which some enacted and some did not.

I would say you are absolutely right, that the jurisdiction should go beyond the 2-mile limit, definitely.

Mr. ROSTENKOWSKI. Thank you.

(The prepared statement of Senator James E. Strunck follows:)

STATEMENT OF STATE SENATOR JAMES E. STRUNCK, 29TH SENATORIAL DISTRICT, CITY OF CHICAGO, STATE OF ILLINOIS

Mr. Chairman, allow me to thank you for the privilege afforded me to submit a written statement on the problem of jet noise emanating from operations into and out of Chicago-O'Hare International Airport. I am presently a State senator representing the 29th senatorial district in the General Assembly of the State of Illinois. The boundaries of said district generally extend from North Avenue on the south, Central Avenue on the east to the city limits of Chicago on the west and the north, excluding therefrom Chicago-O'Hare International Airport and the forest preserve immediately east of said airport. The district lies adjacent to Park Ridge and includes therein all or parts of the 36th, 38th, 41st and 45th wards which are also represented by either Congressman Pucinski or Congressman Rostenkowski.

I would like to make certain comments regarding air traffic operations into and out of Chicago-O'Hare International Airport which could result in increased air safety, more rapid movement of aircraft into and out of the airport, and a consequent reduction in the exposure to noise by affording opportunities for aircraft to approach at higher altitudes without a sometimes needed circuitous, erratic flight path on final approach and by otherwise reducing ground delay.

It is felt that in instances Federal legislation may be necessary and in other instances could be accomplished locally only after study by the Federal Aviation Agency and by a measure of positive cooperation, both from the Federal Aviation Agency and the Civil Aeronautics Board, with the other affected parties.

These suggestions would be as follows:

1. Require all aircraft to operate under IFR at all times or increase the VFR minimums in the air traffic complex of the airport to, as a suggestion, 5,000 feet and 5 miles and to require all aircraft operating therein to have a minimum a two-way radio.

2. The imposition of minimum operational airspeed requirements for all fixed wing aircraft intending to use said airport of, as a suggestion, 120 knots in the approach patterns and 110 knots on final approach.

3. The installation of complete ILS approach systems on those runways which are presently afforded only a back-course approach.

4. To discourage the use of the airport by all aircraft other than air carriers during those peak scheduling hours and a determined effort on the part of feeder airlines to utilize equipment updated from the DC–3 on flights scheduled to arrive or depart during said peak scheduling hours.

5. A realistic revision of master airline scheduling so as to more accurately show proposed takeoff times rather than as at present 5 or 10 aircraft are shown on the schedules to take off at an identical time which is a physical and operational impossibility and which consequently leads to lines of aircraft on the taxi strip, all awaiting takeoff and consequently contributing an unecessary noise factor.

6. The inauguration of a study to determine proper spacing of secondary airports in the immediate vicinity of the airport and in the Chicago area proper.

7. A recognition by all agencies involved that noise abatement, as well as operational features, be considered in runway layout and extension. Thus, if consideration is given to both factors at O'Hare, runway 4–22 should be first

extended. It meets an operational requirement and also serves to reduce a noise problem by, if nothing else, a diffusion and consequent reduction of noise in those areas now most exposed.

8. A cooperative effort on the part of Federal agencies, including the Federal Aviation Agency and the Housing and Home Finance Agency, to allocate so-called open-space land acquisition funds plus Federal Aviation Agency airport funds and local funds to establish buffer forest preserves and other recreational areas around airport.

During the committee hearing certain members and witnesses, either have raised questions or testified to the present zoning status of the airport. In my mind, a certain measure of misunderstanding and confusion seemed to be indicated from the questions asked and comments were made relative to the continuance or discontinuance of Federal airport aid until zoning was established.

I would beg to point out that under the provisions of title 49, United States Code, section 1110, as a condition precedent to approval of a project under that chapter, the Administrator is required to receive assurances in writing satisfactory to him that aerial approaches to such airport would be adequately cleared and protected by removing, lowering, relocating, marking or lighting, or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards. This requirement in the law has been embodied by the Administrator in part 550 through including as paragraph 7 in part III of the project application a reference to incorporation and delineation of what constitutes a hazard as defined in the criteria and standards prescribed in Technical Standard Order No. N18. In order to meet that requirement and to enable enforcement thereof in the State of Illinois the legislature passed senate bill 847 in the 72d general assembly which was approved by Governor Kerner on August 8, 1961, and is presently incorporated in chapter 15½, Illinois Revised Statutes 1961, section 48.101, et sub, entitled "Zoning to Eliminate Airport Hazards."

Briefly, said act provides in section 103 thereof that no person shall erect, add to the height of, or replace any structure contravening the provisions of TSO N18 until a permit therefor has been issued by the State department of aeronautics. Said section thereafter provides that where permission of or submission to the Federal Government, or some department thereof, is required for the erection of a structure, the department of aeronautics shall further not issue a permit until evidence of such permission or submission is shown. The act lastly provides in section 112 for a fine of not less than $10 nor more than $500 for anyone who violates or fails to comply with the provisions of the act and that each day's continuance of a violation is deemed to be a separate and distinct offense.

I personally am not aware of any construction in the vicinity of Chicago-O'Hare International Airport at the present time nor of any pending construction which is in violation of the aforementioned provisions of the Federal Airport Act. I would further point out that Illinois is amongst a minority of States which have such a statute relating to airport protection presently in effect. I might proffer that if an additional requirement of land use zoning is to be imposed as a condition for Federal aid, then in my opinion amendment to the Federal Aviation Act would be necessary. Notwithstanding that fact, the General Assembly of Illinois did further provide by legislation during the aforementioned session of the general assembly that the department of aeronautics of the State shall, upon request of an airport-owning municipality, adopt airport zoning incorporating land use provisions for a particular airport. The land use zoning, predicated on safety considerations, is presently under preparation and as stated will be the subject of a required public hearing in the near future, at which date and time you may be assured all interested Federal agencies and your committee will be notified.

As was elicited from a witness, the question of what is proper land use zoning is not yet finalized.

In an airport development such as O'Hare Field, zoning for land use as it would affect new construction in the immediate vicinity of the airport, would have little merit from a noise standpoint.

It is observed that where the airport is first, the construction that follows is compatible with the airport operation, be it manufacturing, motel, commercial or housing largely for airport or airline employees, none of which groups are particularly concerned about airport noise because they are not only well acquainted with same but feel that the economics and conveniences of such a

location far outweigh the inconveniences. Construction of single family residences in such areas is not undertaken because if, for no other reason as the testimony before your committee has shown, the accretion in land values has been so vast as to render such construction an economic impossibility. Again, the testimony pointed out, especially that testimony by the representatives of Park Ridge and Congressman Pucinski, the complaints concerning noise from the airport operation emanate from areas which commence at least 3 miles from the airport boundary and continue to distances as far as 10 miles. It is difficult to understand how any land use zoning for airport purposes could be adopted to forbid or make nonconforming old established residential developments in such areas and consequently it is my opinion that positive effort must be made by not only the Federal Aviation Agency but by the affected airlines and the aircraft manufacturers to further reduce the noise factors.

Lastly, I have in the past corresponded with the Federal Aviation Agency concerning restoration of identification numbers on the lower wing panels of aircraft. I was informed that same was not contemplated and the reasons cited in support thereof were as follows:

"Comments received indicate that such markings (lower wing marks) are of little value in air-to-air identification. It is recognized that identification marks on the lower wing surface may in some instances serve as a means of identifying violators of noise abatement programs and this matter was given particular attention. However, unless the aircraft is flying at an appropriate altitude, attitude, and speed; the observer is situated directly below the flight path; it is during daylight; and weather conditions are favorable, these marks are of little value in effecting positive ground-to-air identification. In view of these factors and considering the cost of aircraft owners and operators of applying and maintaining lower wing surface marks, the Agency has concluded that sufficient justification does not exist to require the display of such marks."

It seems inconceivable that the usefulness of lower wing marks can be outweighed by the burden imposed upon the operators of maintaining such marks when consideration is given to what must be a tremendous burden of maintaining the various color schemes, identifying symbols and trademarks presently attached to aircraft. I can see no valid or legal reason why a formal requirement directing the restoration of underwing markings cannot be established. It is understood that a man a mile away from an airplane flying at 2,000 feet, or even any lesser altitude, could not read underwing markings but it is no reason to deprive an individual, standing under the direct path of that aircraft being flown at an altitude below the suggested operating altitude, from being able to identify and report a violation and thus to lend a greater measure of protection to the safety of persons and property on the ground.

Again, allow me to thank you for the opportunity to present this statement.

Mr. SPRINGER. I yield to Mr. Collier.

Mr. COLLIER. Not directly bearing upon the problem that we are dealing with today, it is my observation that as we consider these things it seems to me that we should be getting the local zoning laws and attempting to coordinate community planning with the biannual airport construction legislation with which we deal.

At the same time, I should like to make the further observation that the tremendous transition in the type of equipment in recent years makes it almost useless to go back and attempt to determine what judgment was used in original zoning laws. Today we are in a jet era which no one, apparently, was expected to foresee 10, 12, and 14 years ago. Thus the problems we have before us today.

STATEMENT OF HON. ROMAN C. PUCINSKI, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS—Resumed

Mr. PUCINSKI. Congressman, if you will permit one observation, this is why I think this committee and this Congress cannot go back and undo the rezoning law of two or three or four decades ago, but I think that this Congress had better give some serious consideration

as to some minimum and maximum standards of the size of airplanes that can be used at these airports near urban areas, because if they develop a 270-passenger carrier you are going to see that while we have a problem now 10 and 12 miles away from the airport, you are just going to extend that problem back 20 miles from that airfield. So you are going to create more problems.

Particularly, I think this Congress ought to give some consideration to this point when you recall the statement made by United Air Lines the other day, which appeared in the Chicago Tribune, and which is in my appendix, they are making their most money on the 64-passenger Caravelle. They are operating at 92 percent of capacity on a Caravelle between Chicago and Newark.

You know what the figures are for the 770's and DC–8's.

Mr. COLLIER. Of course, Congressman, the size alone is but one factor. I would be reluctant to embark upon any solution to this problem based upon size or capacity of craft. So you cannot sit there, nor could I, and anticipate what the equipment will be 10 years from now and whether size will determine the problems that we will face 10 years from now or 15 years from now.

We may find in this period of time that we can increase the size and capacity of aircraft tremendously, but perhaps may discover some means by which the noise problem at the same time would be abated through the type of equipment that we would then be using.

Mr. PUCINSKI. But my colleague I am sure will agree with me that the time has come when the legislation on the books has to start reflecting some rights of the people on the ground.

The Federal Aviation Act was written to control the airline industry. But I think these people between O'Hare Field and Lake Michigan have a right to be considered.

Mr. COLLIER. So do I. We are all for motherhood and against sin. I am simply saying that to attempt to legislate this thing on the basis of size and capacity might be entirely wrong. I do not know what, mechanically, will be produced 10 years from now that might create less of a noise problem to carry a capacity of 200 passengers than it would be to carry the 65 in the Caravelle aircraft.

I would be most hesitant to attempt to legislate restrictions on size, not knowing what the future will bring with regard to the type of equipment and the noise that is involved.

Mr. ROSTENKOWSKI. Will the gentleman yield?

Mr. COLLIER. I will be happy to yield.

Mr. ROSTENKOWSKI. I would like to make this observation. I read somewhere just the other day that United Air Lines has increased the payload factor on the Caravelle; the Caravelle, however, is the noisiest jet aircraft that takes off at all these airports.

Mr. PUCINSKI. Congressman, I think you are absolutely right, and I think the studies will undoubtedly prove this.

However, I think you will find that the Caravelle gets to altitude much faster and, therefore, by the time the Caravelle comes over the Taft High School on a takeoff, as against the 770 or DC–8, as far as I know, and I have no studies, although you have raised a very interesting point which I certainly would like to see some studies on, as far as I know the Caravelle does not give us the kind of ear-shattering noise in those areas removed from the airfield that the 770 and DC–8 does because it climbs to higher altitudes quicker.

I do not think I am wrong on that.

Mr. ROSTENKOWSKI. We can develop this with the FAA, I suppose. Thank you, Mr. Collier.

Mr. WILLIAMS. Are there any further questions?

Mr. PUCINSKI. Mr. Chairman, you have given us a great deal more time than we ever expected to get from your committee, and we are grateful to you.

Mr. WILLIAMS. Thank you, but if you do not mind we are not quite through.

Who owns Chicago-O'Hare Field, Mr. Pucinski?

Mr. PUCINSKI. Congressman, perhaps you would care to raise that question with Mr. Downes, the commissioner of aviation.

Mr. WILLIAMS. I would like to get that developed pretty soon because I want to pinpoint some areas of responsibility in regard to the handling of traffic in these two airports.

Mr. PUCINSKI. I think both Mr. Downes and Mr. Niles probably would be much more qualified to answer these particular questions than I would.

The city of Chicago owns O'Hare Field.

Mr. WILLIAMS. Chicago owns it. That is what I want to get. I do not want to go into detail. The city of Chicago owns O'Hare International. The city of Chicago also owns Midway, is that correct?

Mr. PUCINSKI. Yes; so far as I know.

Mr. BELL. The property belongs to the board of education, or at least a portion of it, at Midway.

Mr. WILLIAMS. Of the city of Chicago?

Mr. BELL. Yes.

Mr. WILLIAMS. Midway Airport is within the geographical city limits of the city of Chicago?

Mr. PUCINSKI. That is correct.

Mr. WILLIAMS. Is O'Hare within the geographical city limits of Chicago?

Mr. PUCINSKI. Technically it is. It belongs to the city of Chicago.

Mr. BELL. It is within the city limits. It has all been annexed.

Mr. PUCINSKI. As I say, Congressman, O'Hare Field is legally a part of the corporate limits of the city of Chicago.

Mr. WILLIAMS. You indicated that the city of Des Plaines, Park Ridge, and these other communities around the airport are incorporated cities themselves.

Mr. PUCINSKI. That is correct.

Mr. WILLIAMS. Are they cities within a city or are they separately incorporated entities?

Mr. PUCINSKI. As you will see later, and I will try to show you on this map as best I can, the city of Chicago ends along the corporate limits of Chicago and roughly along Canfield Road, right in through this area I am pointing to on the photo. These villages of Des Plaines, Schiller Park, Bensenville, are individual corporate subdivisions. But then we have annexed—this is why I said in my original statement that legally and technically O'Hare Field is in Chicago—we have annexed O'Hare Field proper to the corporate limits of Chicago proper through this Higgins Road, which is a little appendix that ties together O'Hare Field to the city of Chicago.

Mr. WILLIAMS. While it may not be in what might be called downtown Chicago, it is physically contiguous to the geographical area of the city of Chicago?

Mr. PUCINSKI. Yes, sir. It is connected.

Mr. WILLIAMS. Who operates these two airports? Are they operated under a single commission?

Mr. PUCINSKI. Well, Commissioner Downes is our commissioner of aviation for the city of Chicago.

Mr. WILLIAMS. The Aviation Commission of the City of Chicago has under its jurisdiction both airports?

Mr. PUCINSKI. That is correct.

Mr. WILLIAMS. I only wanted to get that into the record.

Mr. PUCINSKI. We also have Meigs. That is a very efficient field on the lakefront.

Mr. WILLIAMS. Is that a general airport?

Mr. PUCINSKI. For limited use, yes, sir.

Mr. WILLIAMS. Airlines do not operate in and out of there, do they?

Mr. PUCINSKI. Helicopters do.

Congressman, may I again remind the committee that Alderman Eagan is here.

Mr. WILLIAMS. I have some questions with regard to the management of these two airports, but I will get to those later when we have other witnesses.

Mr. PUCINSKI. I should like to call your attention again to the fact that Alderman Eagan, who has a very distinguished record in Chicago as chairman of the Aviation Committee of the City Council, is here, and, as far as I know, he is available to answer any questions that might help you resolve some of these problems.

Mr. WILLIAMS. I appreciate that. I will get into details on these questions with him.

I simply wanted to establish the ownership of the airport and the responsibility for its operation before you left the stand, if I could. I think you have already answered those questions.

Let me ask you, with respect to your specific problem, is the noise problem greater when the plane is operated under instrument conditions or is it greater when it is under VFR conditions, or is there any difference?

Mr. PUCINSKI. One of the really disturbing factors is that the noise problems seem to be with us under both conditions. I think that the people of my community could live with the problem under instrument conditions. They realize that this pilot is trying to bring his passengers in as quickly as he can. There is a safety factor involved.

I have had many, many people say, "Congressman, I don't mind when they come in low when the weather is bad and they want to get in, because I want to see him get in as fast as he can." People have been most understanding, God bless their hearts, they have been very understanding. But we also have these excessive noise conditions when we actually have CAVU—ceiling and visibility unlimited—conditions. There is no reason in the world why you should have these fellows coming in this low and creating this horrible disturbance when they have ideal weather conditions.

This is what disturbs the people in my district.

Mr. WILLIAMS. Does the Federal Aviation Agency prescribe minimum altitudes on approach over the outer and inner markers?

Mr. PUCINSKI. Yes, sir.

Mr. WILLIAMS. Do you know what that minimum altitude is? Does it vary with the type of aircraft or is it a fixed minimum for all aircraft?

Mr. PUCINSKI. Congressman, perhaps I ought to leave that to the FAA people, to Mr. Hines. There is leeway allowed. Our complaint is that many of these fellows go beyond the permissible tolerances.

Mr. WILLIAMS. I know some time ago you discussed with me the possibility of trying to persuade the Federal Aviation Agency to require the painting of numbers on the underside of the wings. I understand from your testimony, or from your addendum to your testimony, that you were successful in persuading them to encourage that, but has a regulation been issued on that?

Mr. PUCINSKI. Mr. Chairman, I have also included in my statement, and I think I said it orally in my recapitulation, that I am very grateful to the sympathetic and understanding audience I got from you. It was no accident that the FAA has asked the airlines for these undermarkings. I am aware of your conversations with the FAA. I am very grateful to you for your help.

Mr. WILLIAMS. Thank you.

Mr. PUCINSKI. Well, in behalf of my people, we thank you.

Mr. WILLIAMS. I do know that that was your suggestion.

I thought it was certainly a worthwhile and constructive suggestion.

Apparently, the FAA has followed that suggestion to some extent.

Have these numbers actually been painted on these aircraft to any appreciable number?

Mr. PUCINSKI. The FAA is painting them on their own equipment. They have asked the carriers to paint them on their equipment. They have also asked the international carriers to paint it on their equipment.

If you will refer to my page 4 of my statement, I quote from Mr. Halaby's letter in which there is agreement.

As far as whether or not the paintings have actually been placed on the airplanes as of this moment, I have seen no evidence of that yet. But Mr. Halaby said their equipment is going to be painted immediately.

Mr. WILLIAMS. The point of my question is this: I presume that you have not had sufficient time to determine whether that has or will improve the situation with regard to these low-flying aircraft.

Mr. PUCINSKI. No, we have not had any experience with this yet.

Mr. WILLIAMS. So that is still speculative.

Mr. PUCINSKI. That is correct, sir.

Mr. WILLIAMS. I believe those are all the questions I had at this point.

Thank you very much, Congressman Pucinski and Mr. Bell.

Mr. PUCINSKI. Thank you.

Mr. BELL. Thank you.

Mr. WILLIAMS. It is now 12 o'clock, and we have as our next witness the mayor of Park Ridge, Ill., the Honorable John H. Overbeck.

Mayor, I would think there would be quite a number of questions directed to you and that your testimony will probably require some time. The House is already in session.

The committee is taking steps to get permission to sit this afternoon during general debate in the House.

On the assumption that we will be successful in getting that permission, if it is agreeable with other members of the committee. I think we might meet back here at 2 o'clock.

With that understanding, and anticipating that we will get permission to sit during general debate, the committee will recess until 2 o'clock this afternoon.

(Whereupon, at 12:05 p.m., the committee recessed to reconvene at 2 p.m., this same day.)

AFTERNOON SESSION

Mr. WILLIAMS (presiding). The committee will be in order, please.

We have a statement, by the Honorable Marguerite Stitt Church, a Member of Congress from the State of Illinois, to be included in the record at the beginning of the record immediately following the testimony of Mr. Pucinski.

(Statement of Hon. Marguerite Stitt Church follows:)

STATEMENT OF HON. MARGUERITE STITT CHURCH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. Chairman, I am grateful for the privilege of appearing before you to present my plea for remedial action in connection with the aircraft noise problem which has been the source of major concern and annoyance to residents in the vicinity of O'Hare International Airport for so many years. In fact, Mr. Chairman, complaints started coming to me as early as 1956—even before commercial jets were being flown in and out of O'Hare. Such complaints from private citizens as well as from mayors of surrounding cities have increased in tempo over the years with augmented use of the field. I am happy to say that several mayors and other officials from cities in my district have come to Washington to attend these hearings in order to give their own testimony.

Some protests have come from men who report that they themselves are skilled pilots and, therefore, in their opinion, well qualified to make the statement that they do: namely, that the noise at O'Hare indicates a lack of effort or concern on the part of pilots for residents who are perfectly willing to accept as understandable amount of noise as part of modern-day living. One such pilot states as follows: "Planes seem to come in at practically tree-top level which is absolutely unnecessary under anywhere near normal flying conditions. I have done a considerable amount of flying myself and I know that coming in at under 1,000 feet when you are 3 miles from the airport is not using good judgement and certainly not conducive to safety of either the aircraft passengers or the citizens living around the airport."

Another resident of the area writes: "The shocking noise not only prevents normal conversation, television and radio programs, it also jangles nerves and is a menace to health because it is almost impossible to get a good night's sleep. The vibration rattles dishes, moves picture frames, and cracks plaster. The fallout of fuel mixed with water is sufficient to discolor bird baths, so that it obviously contaminates the atmosphere we breathe * * * Overriding all these annoyances is the mounting fear of a crash."

Similar complaints about the excessive and seemingly unnecessary low flying and noise are repeated over and over in my large file of letters received incessantly from residents of the area since 1956. It is only reasonable to expect that increased noise and corresponding inconvenience and protest will occur now that all jets flying to and from Chicago land and take off at O'Hare.

Mr. Chairman, I personally have, of course, neither the technical knowledge nor flying experience necessary to make concrete suggestions as to how this problem could and should be met. I think, however, that the harassment, damage, and danger to residents of a home community should be recognized and that every effort should be made to find a possible sound answer. It is my hope, therefore, that this committee—responsible also for progress and safety in transportation aloft and on the ground—will devote its full attention to finding a solution which will combine maximum relief from noise and danger for the residents of the area surrounding O'Hare Field, with full consideration at the same time to the maintenance of safety for both air crews and passengers.

Mr. WILLIAMS. Our first witness this afternoon is Mayor Overbeck, of the city of Park Ridge.

STATEMENT OF HON. JOHN H. OVERBECK, JR., MAYOR, PARK RIDGE, ILL.; ACCOMPANIED BY JAMES COLE, ALDERMAN, PARK RIDGE, ILL.

Mr. OVERBECK. Mr. Chairman, gentlemen, on behalf of the city of Park Ridge, I would like to express our appreciation for the opportunity of appearing before you and testifying today.

Before going into my testimony, I would like to comment briefly on the nature and location of the city of Park Ridge.

Park Ridge is a city of 35,000 residents. It is almost exclusively residential. There are a few specialty shops. There is no industry in town. The city is over 100 years old.

Mr. Cole's grandfather actually first came to the city in 1854, so you can see we are not a Johnny-come-lately.

(Reference to map.)

This, by the way, is the same expressway so prominent on Congressman Pucinski's map. Park Ridge lies north of the expressway. Des Plaines lies in the northern area of this photograph. The belt in between, which caused some observation during the prior testimony, is all forest preserved land.

So remembering that Park Ridge is a city of residences, homes and churches, I will proceed. While on the subject, I would like to introduce for the record, if I may, a tabulation we had made of the interruptions in Park Ridge schools for a 14-day period, from May 23 to June 12. This was made under the supervision of the superintendent of schools at our request, and it shows a total of 750 interruptions.

Not disturbances, gentlemen, but interruptions, where classroom work stopped during this 14-day period.

Mr. WILLIAMS. That may be included in the record at this point.

(Document referred to follows:)

DATA SHEET

1. The information was furnished by each school at the request of the superintendent of schools, district 64.
2. Reported interruptions are per school, not per classroom.
3. The daily totals represent total interruptions per school for all schools in district 64.
4. The total number of interruptions reported for these 14 days for each individual school is shown in the column on the right of the chart.
5. The grand total of 750 represents the total number of interruptions suffered by the 11 schools in the 14 days recorded.
6. The grand total of 750 would be increased manyfold if multiplied by the number of classrooms in the schools; or by the number of children (6,000) enrolled in the schools.

Number of interruptions reported

School district 64	May						June								Total, 14 days
	23	24	25	28	29	31	1	4	5	6	7	8	11	12	
Carpenter	2	5	2	5	2	2	3	4	4	8	5	3	5	1	51
Edison	0	0	0	0	1	0	0	15	5	6	10	4	3	0	44
Emerson	9	0	2	3	2	1	1	1	0	2	1	0	2	1	25
Field	0	0	2	3	0	3	1	4	3	3	5	2	2	1	29
Franklin	18	1	2	4	0	3	1	4	1	6	1	3	3	5	52
Jefferson	2	0	0	0	0	0	2	1	0	2	4	0	1	0	12
Lincoln Junior High	16	2	14	3	2	3	3	14	6	4	9	5	3	0	84
Merrill	0	4	11	16	18	8	17	22	28	13	31	13	2	1	185
Oakton	[1]22	0	0	0	0	1	0	1	1	7	2	1	3	1	39
Roosevelt	12	1	16	8	4	2	3	18	11	20	13	11	7	1	127
Washington	11	0	1	4	1	14	7	25	6	0	14	3	12	5	103
Daily total	92	13	50	46	30	37	38	109	65	71	95	45	43	16	750

[1] 18 in morning.

Mr. OVERBECK. In the early part of 1960, it became obvious to the city government in Park Ridge that the noise and disturbance created by incoming and outgoing jets from O'Hare Field was going to be a serious threat to the welfare and well-being of the city and its citizens.

If there could have been any doubt on this score it was rapidly removed by the hundreds of complaints that were received from citizens in Park Ridge. As a result of the obvious effects the airport was going to have on nearby residential communities and the complaints of the citizens of the town, the Park Ridge City Council, in the early part of 1960 formed a city council noise abatement committee, headed by Alderman James D. Cole, who is with me today and who will speak to you later.

During the last 2½ years, the Park Ridge Noise Abatement Committee has been exceedingly active in studying the noise problem emanating from O'Hare Field as it affects the city of Park Ridge.

We have held numerous conferences with representatives of the FAA, the airlines, and the pilots' association. We have attempted to confer with the owner of the airport, the city of Chicago, but have found that it has little interest in the noise problems of suburban communities adjoining the airport.

I might add to this that I was most happy to see Mr. Downes here today and Congressman Pucinski. It may well be that their feeling on this is somewhat changed.

We have read and studied with great interest the various reports touching this subject that have been issued by committees of the House of Representatives, including the report entitled "Noise: Its Effect on Man and Machine," issued by the Committee on Science and Astronautics in 1960, the report of the Committee on Interstate and Foreign Commerce, submitted by the Honorable Oren Harris in 1960, and the 1961 report of the Committee on Interstate and Foreign Commerce, also submitted by the Honorable Oren Harris.

We have made detailed observations and kept detailed records of the flight patterns of planes arriving at and departing from O'Hare, insofar as such planes affect Park Ridge, and at the present time such observations are made and such records are compiled by trained observers operating in what we call the aircraft noise monitor truck.

This is a piece of mobile equipment which is especially designed

to facilitate all-weather observations of aircraft. It is equipped with sound metering devices, with radio equipment which makes it possible to monitor all frequencies used in communicating between airport and plane, and a device for determining the height of overhead planes.

In all our efforts we have attempted to be fair and reasonable and to understand the problems of the FAA, the airlines and the pilots. We are not egotistical enough to believe that the testimony we give here today will lead to any quick and painless solution to our problems. We know and realize there is no quick and painless solution. However, we are immodest enough to sincerely hope that some of the suggestions we have to make will eventually lead to amendments to the Federal Aviation Act and the adoption of rules and practices that will result in significant forward steps in solving the problems confronting us.

We fully understand that this committee is not concerned with the problems of Park Ridge, as such. It is concerned with the problems of Park Ridge only insofar as such problems mirror those of all other residential communities adjacent to major airports.

At this time we are going to proceed to study the noise problem at Park Ridge in some depth, and in particular in respect to one pattern, and suggest solutions thereto, on the premise that such study and such solutions may suggest means for solving the problems, not only in Park Ridge, but in a great many other communities adjacent to major airports.

Before proceeding further, let me make it clear what we are not going to recommend. We are not going to recommend that planes quit flying over Park Ridge and in lieu thereof fly over comparable residential areas. Too often, at least in the preliminary stages of discussion, noise abatement groups have been wrongfully accused of this type of activity.

We fully recognize that this does not solve the problem but merely shifts the problem from one community to another community.

Our observations and studies have indicated that there are three major areas in which relief from plane noise can be reasonably anticipated. Listed in order of importance these areas are flight patterns, pilot technique, and equipment.

You will note that this first area has been prominently referred to on page 7 of the report of the Committee on Interstate and Foreign Commerce issued on September 20, 1960.

I would like to explore each of these areas briefly, as they affect Park Ridge, and then ask Mr. Cole, who is far more familiar with the technical aspect of the problem, to comment thereon.

Calling your attention to the map in front of us, this is O'Hare Airport and this is the city of Park Ridge. At the present time, 70 percent of our problems arise from planes taking off from runway 9 and runway 14–left. These are takeoffs. You will note that Congressman Pucinski referred to arrivals.

Our main problem is takeoffs and I will later explain why I think there is a difference of emphasis on our problems.

These planes, taking runway 9, pointing due east, generally will fly in takeoffs in the following patterns. The planes will take off and one will turn off one way, one another way [indicating on map pattern of diversified turning].

The expressway is shown as the borderline between Chicago and Park Ridge.

Mr. WILLIAMS. Do I understand that planes taking off from runway 9 go over Park Ridge?

Mr. OVERBECK. They go over Park Ridge, Mr. Chairman, by a fanning-out process although they will start straight off the runway heading.

Mr. WILLIAMS. Making a left turn?

Mr. OVERBECK. That is correct, sir. You will get this fanning-out procedure at different intervals. First, they will fan to the left and then they will also fan to the right.

Mr. ROSTENKOWSKI. Is this runway the one adjacent to the highway?

Mr. OVERBECK. This is the one pointing to the highway. This is the same prominent expressway that was on Mr. Pucinski's map.

Mr. ROSTENKOWSKI. Is this the same highway that they are guiding in on landings from Taft High School?

Mr. OVERBECK. Right. Here is shown the location of the ILS equipment, and Taft High School [pointing to map].

The gentlemen quite properly pointed out planes are not coming in and going out at the same time. If they are going out on a particular runway, they are not coming in on that runway. They are coming in on another runway, depending on wind conditions.

Mr. WILLIAMS. How far is the high school from the end of the runway?

Mr. OVERBECK. Taft High School? About 5 miles, or a little over 5 miles.

I might at this point mention——

Mr. COLLIER. There are, however, several public schools that are in the area considerably closer than Taft High School.

Mr. OVERBECK. Yes. Here is shown the excavation to start a township high school, and there is a parochial school and three grammar schools in this same area.

Gentlemen, if you will examine this chart with me, you will see that there are numerous areas over which planes can fly and create the least possible, rather than the most possible, disturbance to residential areas in the town.

The areas that I am referring to are either sparsely populated areas, such as forest preserves and farms, or areas in which there already exists a high ambient of noise level. Among the most prominent of such areas, of course, is the expressway, itself.

The expressway affords, and we completely agree with this general observation on the part of Congressman Pucinski, from a noise abatement point of view, an ideal place over which to fly planes. The right of way for the expressway is, in most cases, 300 feet. It is banked on each side, which provides a buffer for noise.

On the Park Ridge side there is another 100 feet to a main arterial road, Higgins Avenue, and fronting Higgins it is zoned commercial.

These are the areas where the planes cause the least disruption. I don't say it will cause no disruption. Of course the home a block away will have some problem. But you will note the present flight pattern completely devastates the entire area. It doesn't limit its noise destruction to one area which can best take the noise. But it devastates the residential area to the left of Park Ridge and devastates the residential area to the right, a part of Chicago.

There are other such areas, that I would like to point out, able to absorb high noise levels, besides the expressway. The forest preserve, another north-south toll road, and east-west toll road. Also shown is an area that is largely farming and industrial. There is one residential area further to the east. [Areas pointed out on map.]

You will notice the differences on the map. Down to the lower left-hand area we have substantial industrial areas.

In a sense, then, Park Ridge, as well as the other residential areas on the east side of O'Hare Airport have been blessed with the location of areas over which planes can fly with the least disturbance to residents, if only we have enough commonsense to properly utilize those areas.

In the latter part of 1961, we sat down with representatives of FAA, the Airline Association and the Pilots' Association and suggested that flights taking off from runway 9 maintain their runway heading, which as you can see would take them directly over the expressway, until they attained an altitude of 2,000 or 2,500 feet above ground level.

At this level, the plane reaches sufficient altitude to level off and reduce thrust and water injection and other devices that result in maximum noise. At this point between 2,000 and 2,500 feet, the plane can fly over a residential area with considerably less damage to the people on the ground than prior to the time this point is reached.

As you know, at the time the pilot is able to reduce the full takeoff thrust, somewhere between 2,000 and 2,500 feet as a rule, a very substantial reduction in noise takes place which, when added to the relief inherent in the height obtained, substantially lessens the noise on the ground.

Similar suggestions were made in respect to planes taking off from runway 14–left: namely, the planes follow this course of flight until they reach 2,000 to 2,500 feet above ground level.

Fourteen-left is a major runway. Fourteen-left planes take the same basic pattern. They will come around and make the turn to the left, fanning out all over the area. In fact, they remind me of a phrase in a history book I had in the third grade. The book said that George Washington jumped on his horse and rode off in all directions.

This aptly describes much of the action that we see here.

Mr. WILLIAMS. Do jet aircraft use 14–left?

Mr. OVERBECK. They use 14–left and 14–right both, and they use 9. All three runways are jet runways. Propeller aircraft are also flown, of course, on the same runways. They are intermingled.

Here we suggested on 14–right that a different pattern be taken over the expressway, using the forest preserve area as a buffer to get back over the expressway.

The FAA people stated that our suggestions sounded reasonable and that they would try them out on a test basis. After a week or two, during which Park Ridge experienced considerable relief from noise problems, the FAA abandoned the flight pattern we had suggested, and once again we have a substantial number of planes departing from these runways flying over Park Ridge with full power thrust on.

Gentlemen, I want to explain that I am covering only one pattern. I think 70 percent of the Park Ridge problem arises from this pattern.

Obviously, there are other patterns involved, but I want to go into depth with one problem to illustrate a principle.

Mr. HEMPHILL. If 70 percent of your problems arise from that pattern, then I take it that 70 percent of your problems are takeoff problems.

Mr. OVERBECK. That is correct, in our opinion, Congressman.

Mr. HEMPHILL. Thank you.

Mr. OVERBECK. We have found, to get to Congressman Pucinski's point where he is bothered by arrivals, that in this area arriving aircraft, with rare exceptions, when a plane has to get out of a pattern because it is following too closely to another plane, do follow the expressway.

That is where the ILS is bringing them in. This is the natural method of landing the planes. Our people are getting noise not from 2,500 feet or 2,000 feet. But they are getting noise from 600 and 800 feet. So we haven't been too much bothered by the planes coming in.

Noise is relative. When you have heard a plane taking off with full power thrust on, 800 feet overhead, a plane coming in on a glide over an expressway three blocks away, while it makes some noise, by comparison is a relatively tolerable noise.

I think they have done a fairly good job, once they get past the outer marker, in coming in over the expressway.

The question was asked before in respect to holding patterns. There used to be holding patterns over town. They have done a good job on this. We must say that. Most of the holding patterns now are over the lake or to the west over sparsley populated areas. This has been a definite improvement.

Now I would like to get back and examine in depth this one pattern again. Mr. Cole will comment more on it later, but it will suffice to summarize FAA's objection, because I think it pinpoints an issue which leads to the solution or the suggestion that we are eventually going to make.

Remember we are talking about 2,000 or 2,500 feet, and if a plane is over Park Ridge when it gets over 2,000 or 2,500 feet, fine, be our guest, we don't say planes should never fly over us. But we are saying don't turn over us at anything under that. The FAA objection, as I understand it, and they will, I imagine, speak more on this later, was that by following this procedure they were not able to take as many planes off as quickly as they are by a fanning-out procedure, because by fanning out the planes they get a plane away from the departure course, away from the takeoff course, and can immediately send a second plane out.

We must remember, and I think Mr. Hemphill brought this out very well, you may have a piston plane going out, immediately followed by a jet, traveling considerably faster, so the FAA people in the tower, quite understandably, want to get these planes off the ground as fast as possible. So this is why they adopt this fanning-out procedure, devastating the entire area, rather than going straight out over the expressway; because of the desire to get planes out.

There are, of course, answers to this. We, in some way, must accommodate conflicting interests. Conflicting interests are nothing new to our way of life. Maybe you get to a point where a plane has to wait on the ground 1 or 2 minutes more in order to accommodate

noise abatement procedures. Maybe you get to a point where planes should be scheduled differently.

It is interesting to note, for example, taking just one airline, United, they fly probably 40 percent of the jet flights out of O'Hare, they have six flights scheduled to the east coast at 12 o'clock noon. Between 12 o'clock noon and 12:15 noon they have 13 flights scheduled to the east coast.

Is there any wonder that you need this kind of fanning-out procedure when scheduling is done in this manner? Again, some way we must devise a method to somehow balance the competing interests, one wanting to use maximum utilization of air space and the other interest being a reasonable noise abatement program.

While we are discussing flight patterns, I would like to refer briefly to the question of air safety. I believe every noise abatement group, somewhere in the course of its experience, finds itself accused of attempting to sacrifice safety in favor of noise reduction.

It has been our experience that individuals and groups all too frequently present the safety argument as a "strawman" deliberately inserted to confuse the issue.

In every case where we have suggested a flight pattern, we have consulted with individual airline pilots to determine whether or not the pattern we were suggesting involved any compromise with safety.

In every instance where we suggested a pattern the pilot with whom we discussed the matter agreed that the pattern suggested either involved no compromise with safety or, if anything, was safer than the pattern currently being flown.

Referring back to our recommendations of departures from runway 9, you will note that our recommendation calls for the maintenance of runway heading until 2,000 or 2,500 feet altitude above ground level has been reached, a far safer procedure than the pattern of sharp turns currently being followed.

In this pattern we are not recommending sharp turns, which the Pilots' Association has, quite rightly, I think, criticized at times. We are recommending a straight-out approach, the safest pattern for the plane taking off.

Mr. WILLIAMS. Let me ask you one question about that. Your community is northeast of the field; is it not?

Mr. OVERBECK. That is correct, sir.

Mr. WILLIAMS. A plane taking off on runways 14 or 14–right would not make one of these sweeping turns over your community if it made a straight-out takeoff to 2,000 or 2,500 feet, would it?

Mr. OVERBECK. None of these planes would disturb our community from 14–right, 14–left, or 9, if they maintained a straight-out heading.

Mr. WILLIAMS. Have you had any difficulty or have any problems arisen with respect to planes taking off on 14–right?

Mr. OVERBECK. Fourteen-right not particularly. They make the same turn, but you will notice the difference in distance. A plane taking off from 14–right can make a turn and come over Park Ridge and it will generally be at 2,000 feet because, of necessity, it has to travel that amount of space.

Planes from 14–left will make the turn and frequently come over Park Ridge at 1,000 or 1,200 feet. Planes from runway 9 will start their turn almost after they have reached about 400 feet altitude, as soon as the pilot thinks it is reasonably safe. They will come over the

center of Park Ridge at as low as 600 or 800 feet, under some circumstances.

I would say averaging 1,000 or 1,100 feet, again depending upon the amount of wind and the weather conditions. The hotter the temperature the lower the plane, and the cooler and brisker the day the higher they get.

In respect to the matter of pilot technique, which has some significance on takeoffs but a far greater significance on arrivals, we have frequently observed one plane arriving for a landing and flying over Park Ridge creating a deafening disturbance on the ground followed by a second plane of the same type, creating a minimum amount of disturbance on the ground.

The sole difference was the technique used by the pilot. Mr. Cole will also comment in more detail on this subject.

In respect to the matter of equipment, we have definitely found that all jets are not the same. We have also found that the size of the jet is not always a reliable indication of its noise potential.

Taking the two extremes, we have found that the American Astrojet or Fanjet is probably one of the quietest jets that is flying today; admittedly, it is far from a silent plane, but it is a definite improvement over other jetplanes.

At the other end of the spectrum is United's Caravelle, which is one of the noisiest jets that is flying. I think a member of your committee referred to that, and our tests certainly bear that out.

Mr. Cole will give more detail as to the difference in noise level between these two planes.

If the Federal Government were truly interested in noise abatement and was truly concerned with the rights of the people on the ground the Caravel would not be permitted to fly today.

There are other planes that will do the same job. There is a new one recently put out that Mr. Cole will comment on which creates far less noise. So the impression isn't given that we are picking on United, gentlemen, I would like to refer to something mentioned before, and that is the recent suggestion of the FAA that underwing markings be installed.

We have received a letter from United saying that they are going to be one of the first companies to restore underwing markings, and for this I would like to extend our congratulations. It will make identification easier.

Before making our final recommendations, I would like to comment briefly on our experience with FAA officials. Our discussions have been carried on primarily with George Niles, Ralph Hottman, and Mr. Lyle Underwood.

From some of the comments I have made and Mr. Cole will make, you may obtain the impression that we have less than a high regard for these individuals. If you have this impression we wish to be quick to correct it. Both Mr. Niles and Mr. Hottman and Mr. Underwood have at all times been extremely considerate and patient.

Within the limits of what they have regarded, and probably properly so, as their duties and functions, I believe they have attempted to cooperate with us in establishing more favorable flight patterns and pilot techniques.

We now approach what I believe to be the crux of the present problem. To what extent is the Federal Aviation Agency concerned with

noise abatement procedures and what is its jurisdiction in this field?

To what extent has the Congress recognized the rights of the people on the ground to be reasonably free from noise and is this right, if it exists, equal to, inferior to, or superior to the right of aircraft, in today's world of rapid transportation, to fly in such manner and at such time as they please in order to get persons to and from a destination as fast and economically as possible?

Our observations have led irresistably to the conclusion that the Federal Aviation Agency regards its duties in the noise abatement field as a strictly secondary function, a poor relative sort of relationship which, out of common decency, must be recognized if it is not too inconvenient to do so.

The attitude of the FAA, in this respect, is typified by the opening remarks in most of the letters that we have received from the FAA. They generally start out by pointing out that the Federal Aviation Act of 1958 does not specifically authorize the Agency to issue any regulations directed solely to the aircraft noise problem, but then go on to admit, somewhat grudgingly, that they do have authority to issue air traffic rules which, among other things, are for the purpose of protecting persons and property on the ground and, as such, to the extent consistent with safety, may take into account the aircraft noise problem.

You will note that the old "strawman," "safety," is again raised as an automatic defense device. Just recently the FAA denied a petition of adjoining property owners in respect to the operation of Moisant International Airport in Kenner, a suburb of New Orleans.

The same type of double-talk is contained in this ruling:

> **However, as heretofore stated, the responsibility and authority of the agencies are limited by statute to the modification of air traffic flight procedures for safety purposes. Flight procedures may be modified to relieve noise only to the extent hazards to the flight of aircraft are not created.**

It should be noted in this connection that the request of the petitioners in the New Orleans case had nothing whatsoever to do with safety as they were requesting that all turbojet aircraft operations be discontinued at the airport.

There may have been many reasons why this request should not have been granted, but certainly safety was not one of them—again the use of the "strawman" for the familiar reason.

Unfortunately, the position of the FAA as to its jurisdiction in the noise abatement field is not completely without support.

There does exist some serious question as to whether Congress ever gave the FAA any jurisdiction in this field, or whether Congress ever recognized the rights of the people on the ground to be reasonably free from noise if at all compatible with reasonably efficient aircraft operations.

On page 47 of the 1960 report of the Committee on Science and Astronautics we find the following statement made by the FAA Administrator:

> **We have made reference to the law, and there is considerable doubt in our mind as to whether the law does place upon us the responsibility of writing and establishing rules for noise abatement purposes.**

In the same report the following remarks were made by legal counsel for the FAA:

> **I wanted to make that clear because I don't think that even with the act as it now stands, although I considered that a court would rule that it covered noise, that Congress really faced up to the problem of noise.**

Now, in another area which has been mentioned here, it is quite clear to me that the power to prescribe noise standards is missing from the act.

The fact that Congress used this phrase for the protection of persons and property on the ground, only in the air traffic rules section of the act makes it clear that reference to just air safety or safety in air commerce elsewhere in the act did not extend any further than the traditional previous use of those terms.

I feel, for example, that this question that arose earlier as to whether we could prescribe standards or noise criteria for the performance of engines or aircraft is clearly not covered by the act as it is now written.

Gentlemen, I recognize that in the Interstate Commerce Committee reports of 1960 and 1961, the Interstate Commerce Committee did take the position in its report that at least the noise abatement was a peripheral area over which FAA had jurisdiction.

The confusion arises, of course, out of the fact that in the sections of the Federal Aviation Act dealing with policy (secs. 102 and 103)—really the heart of the act so far as laying down congressional policy is concerned—no reference whatsoever to the noise abatement problem is made.

The only possible reference in the act to the noise problem is the language contained in section 307(c) (which authorizes the Administrator to establish air traffic rules) referring to: "The protection of persons and property on the ground."

As previously indicated it appears the Administrator's present position is that the FAA does have some peripheral jurisdiction in the noise abatement field as long as its actions in this respect in no way, no matter how minor, infringe upon the other objectives of the Federal Aviation Act as set forth by Congress in the policy declarations of the act.

While the "strawman" of safety is the device used publicly by the Administrator to resist air traffic rules that would substantially lessen the noise problem, the personnel in Chicago have been far more frank and candid with us.

Here I am referring to their explanation of why they did not feel that the use of the departure pattern from runway 9 which we had suggested was feasible.

Mr. HEMPHILL (presiding). What personnel were so candid with you?

Mr. OVERBECK. The personnel at the tower, sir. Mr. Niles. He gave us the explanation which I have tried to relay faithfully to this subcommittee of why they did not think it was feasible to follow this straight-out approach; namely, that they would not be able to get a sufficient number of planes into the air in any given time.

This, I thought, was a very frank, a very honest reason to give us. You can't deny that a straight-out approach is safer than making a lot of turns. He made no attempt to do that.

But he pointed out that this would result in slowing up the departure of planes from O'Hare. I am sure the FAA will tell us Mr. Pucinski's proposed pattern of coming in 20 miles out would delay very substantially the arrival of planes.

Mr. HEMPHILL. I just wanted to know who had given you the information.

Mr. OVERBECK. Did I answer your question, sir?

Mr. HEMPHILL. It was the people in the tower.

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Mr. OVERBECK. Yes. Our conferences have been held with Mr. Niles, Mr. Hottman, Mr. Lyle Underwood, from Kansas City.

Mr. HEMPHILL. Thank you.

Mr. OVERBECK. Admittedly, the flight pattern we had recommended from runway 9 is no less safe, and probably more safe, than the one presently being used.

However, if that flight pattern were established someone else's interests would be affected, someone else's ox would be gored. It would not be possible to take off as many planes, during crowded conditions, in a given period of time as it is by use of the so-called fanning-out procedure.

Possibly flights would have to be scheduled so as to avoid having three or four airlines with a scheduled departure at exactly the same time and for the same destination; possibly this would result in some inconvenience to the airlines; possibly it would result in some inconvenience to the passengers, although we fail to understand the advantage of having three or four flights scheduled for departure at exactly the same time and same place.

The significant point, gentlemen, is that in cases of this sort there exists a bona fide conflict of interest, or at least the possibility of a bona fide conflict of interest, between the airlines, the passengers of the airlines, and the people whose homes are located adjacent to a major airport.

What is good for one is not necessarily good for the other. It has been our experience that under such circumstances the well-being and the property values of the people on the ground are the last to be recognized.

Again, I doubt whether the FAA is to be too severely criticized for this attitude. The fault is that of Congress, in our opinion, not the FAA.

The Federal Aviation Act mentions as a policy of the Congress the efficient utilization of the navigable air space, the ability of passengers to travel from one place to another as conveniently and quickly and economically as possible, and the promotion and encouragement of the air transportation system, all lofty objectives, but nowhere refers to the right of the people on the ground to be reasonably free from noise disturbance.

Under such circumstances we can hardly blame the FAA for treating us as poor relatives; they have in fact been so directed to do by Congress.

I fully anticipate that the suggestions we make will meet opposition from the FAA, and I think it is to be anticipated that an administrative agency will ordinarly object to further congressional direction of its activities. This, I think, is part of the administrative way of life, and I think we have to face it and I think we are all familiar with it.

The balancing of conflicting interests is nothing new under our method of government. This task is performed each day by courts and administrative officials. What is sorely needed in this instance is first the recognition of the interests and rights of the people on the ground and, secondly, the creation of a procedure pursuant to which these rights will be recognized and enforced.

Accordingly, in concluding my testimony we would like to recommend to this committee that it recommend to the House of Repre-

sentatives legislation which would have the following general objectives and accomplish the following described purposes:

1. Amend sections 102 and 103 of the Federal Aviation Act, the policy provisions, as to clearly recognize the right of the people on the ground to be reasonably free from noise.

As a suggestion, this might be done by adding to the act, in sections 102 and 103, the following:

The development and regulation of flight patterns for aircraft arriving and departing from airports and the development and encouragement of improvements in aircraft engines and navigational aids and the establishment of pilot techniques to the end that communities in the areas surrounding airports, and particularly those communities developed prior to the development of the airport, will suffer the least possible adverse effect on property rights, in disturbance, and anxiety to the residents thereof because of the noise and hazards resulting from arriving and departing aircraft.

You will note that I gave, in this language, some preference to communities that had been developed prior to the time the airport was developed.

I think it would be reasonable for any one of you to ask, "Why give those communities any preference? Aren't people all the same?"

I would like to comment on that aspect of the proposal for a moment. Aside, of course, from the notion of fundamental justice and equity that certain people were there first, which I think would appeal to most of us, there is a sound economic reason for this distinction.

If you happened, gentlemen, to own 100 acres of land, improved with residences, anywhere around O'Hare, in the noise traffic pattern, and these residences, let us say, were valued at somewhere in the neighborhood of $40,000 each, I think I can say from talking to the realtors in our town that with the arrival of O'Hare Airport you would have suffered a 20- to 25-percent decline in the value of your investment compared to comparable homes in comparable communities without the noise problem existing in this part of Park Ridge.

This is the average reduction in value of the houses in that price range, in the areas in the noise range. However, if you were so fortunate as to happen to have your hundred acres vacant, and you were in this area anywhere around O'Hare, you would have found, gentlemen, as Mr. Springer referred to before, that county zoning generally in this area is industrial around the airport, and so it should be.

This is intelligent zoning. You would have found that your property would have doubled or tripled in value by reason of the existence of the airport. This property around the airport is extremely valuable for industrial and manufacturing purposes.

It has decreased in value substantially for residential purposes. Of course, if Park Ridge was a community with no homes, all blank, vacant land, by intelligent zoning, as Mr. Springer mentioned, we could have solved this problem by developing it as industrial.

But over 50 years ago we passed that stage. As I say, the town is 100 years old, Park Ridge is now 95 percent fully developed. So zoning gives us no relief. That is why I think there is a valid economic reason for distinguishing between property which was developed residential before an airport came into existence and property which is vacant.

The property that is vacant around a major airport generally appreciates substantially in value.

The following is the second recommendation we would make:

2. Amend the act to provide expressly for the establishment of a noise abatement office, under the general jurisdiction of the Administrator and responsible directly to the Administrator, and the location at each major airport of a noise abatement officer whose duty and responsibility would be to promulgate rules for flight patterns and pilot techniques for the purpose of noise abatement.

In this respect, it should be expressly recognized that this officer will have the function of weighing and balancing conflicting and competing interests and that the flight patterns and pilot techniques that afford the maximum benefit to the people on the ground will not always be the ones that result in the most efficient utilization of air space, or permit the most economical use of aircraft, or permit the maximum number of aircraft to take off within any given 10-minute period.

We fully recognize that the task of balancing such competing interests is not an easy one and requires mature and sound judgment. The point we wish to make is that competing and conflicting interests do exist and such a balancing process is the only sensible approach to a solution of the problem.

Gentlemen, we saw before that the Federal Aviation Act refers to air traffic rules for the protection of people on the ground. Part 60 of the Civil Air Regulations contains these air traffic rules. Yet, if you look carefully through part 60 of the Civil Air Regulations you will find only one indirect reference to noise abatement.

We know it is true that in two major airports, Los Angeles and New York, the FAA issued detailed rules regarding noise abatement, much along the line of the type of thing we are talking about here.

However, when they issued those rules they gave public notice of the fact that they did not think they would issue any further rules in respect to noise abatement in particular airports from the Washington office, but indicated the problems might be worked out on a local level on a cooperative basis.

You might well say, "Why must there be a separate noise abatement office or noise abatement officer, or an agency within the Agency? Aren't we overly complicating the matter?"

I think these are good questions and demand a searching, penetrating answer to the questions.

The people that are concerned with noise abatement now are primarily—their primary duty and function as I see it, and I think this is proper, their primary duty is to encourage air transportation, to encourage the maximum use of the navigable airspace, to get these planes off safely, to get them in safely, to get them off rapidly, so there is no delay on the ground or the least possible delay on the ground.

We would never, I believe, think of having the prosecutor be a judge of a case, and I think because of these competing interests we have some of those facets existing when we try to get people who are in charge of the tower, whose principal duty is the operation of an airport—and it is hectic up in that tower, and I know you gentlemen have been up there, they have a lot of duties—to try to give them also the problem of noise abatement.

We suggested, for example, in this particular pattern, that the plane could be brought out to 2,000 feet and then turned, and that then the next plane could be brought off.

They point out, with a great deal of logic, that maybe the first plane is a slow propeller plane; maybe the second plane is a fast jet plane. How can you send a fast jet plane out after a slow propeller plane until the propeller plane is out of the path?

This is good sense. One answer, of course, is to lengthen the time of departures. That slows up departures.

Another answer, and one that was suggested here today was to remove propeller aircraft to Midway, so we have only jet aircraft here. This, I think, would greatly facilitate the taking off of planes.

I don't think we can get to the answer today. What I am saying is that each problem has many facets and there should be a person at each major airport who has a relative degree of independence and whose major duty, whose major responsibility, is to promulgate noise abatement rules and regulations with broad authority to cut across jurisdictional lines to make such rules effective.

3. The noise abatement officer at each major airport, in addition to being given the jurisdiction and power to promulgate rules pertaining to traffic patterns and pilot technique, should also be given authority to impose disciplinary action on any violator of such rules and should be charged with the duty of holding hearings on any complaints alleging violations.

This has been a problem. At O'Hare we do have some local rules that are good rules, fine rules. We find there is a rule in existence with pilot concurrence—these are magic words "with pilot concurrence"—on takeoffs from runways 14 or 9, going west, the old pattern used to be that the planes would take off, circle Park Ridge, and come back, every one, and now through the good offices of Mr. Hottman and Mr. Niles a rule has been promulgated which I think is an excellent rule—I want to give them credit where credit is due. They have established the rule that the planes going west, with pilot concurrence, should take off, make a right turn, and then go over the toll road and then the railroad yards.

These are the railroad yards. Noise doesn't hurt railroad yards. You can make all the noise you want. This is an excellent procedure, but it is with pilot concurrence.

Our observations in the last 2 weeks will indicate that about one out of every five planes going west will take the old path and go right over Park Ridge. We don't know why.

I will say this, that we expect the isolated case that can't be understood. This always happens. You don't know what is going on in that pilot's mind. Maybe he has a lot of problems you don't realize, so the isolated case does not worry us. It is the pattern that worries us.

Mr. ROSTENKOWSKI. You just noted that you had five or six pilots that will be going west continually making a left bank to come over the city of Park Ridge; is that right?

Mr. OVERBECK. That is right.

Mr. ROSTENKOWSKI. At what elevation is that from 14–R, when he is coming over Park Ridge?

Mr. OVERBECK. I would say a plane from 14–R is going to be about 2,000 feet. A plane from 14–left and 9 will be lower.

Mr. ROSTENKOWSKI. I am now concerned with 14–R. Did you or did you not say in your statement that at 2,000 feet you people in Park Ridge have learned to tolerate this noise?

Mr. OVERBECK. Yes. I think we are willing to say that if you take these planes to 2,000 feet, and if it is 2,000 feet it might be over Park Ridge as well as Chicago, but we say don't give us 800 feet.

It is true on 14–right the westerly swing would not be too bad. It would be 14–left and 9 coming out at 800 or 1,000.

The last suggestion we make is for an amendment to the act to grant the Administrator, upon recommendation of the head of the noise abatement office, the power and duty to promulgate rules establishing standards of antinoise performance and prohibiting the use of aircraft not meeting such standards.

Only by such action can we be sure that the latest improvements in the art pertaining to noise abatement devices and the silencing of aircraft engines will be used.

I think it is clear that even under this committee's interpretation of the 1958 act, that the Administrator at the present time does not have the authority to establish criteria for aircraft engines in respect to the amount of noise they make.

This would be our final recommendation.

Gentlemen, thank you for your courtesy.

Mr. HEMPHILL. Thank you for a fine statement. Is it the plan for Mr. Cole to proceed now, or for you to answer questions and then Mr. Cole?

Mr. OVERBECK. I think it would be well for Mr. Cole to proceed and then answer questions, Mr. Chairman.

Mr. HEMPHILL. I was talking to Chairman Williams a minute ago. We have a time problem. I am not trying to keep anybody from saying what they have to say, but Mr. Cole is scheduled, and Mr. Behrel, Mr. Williams from FAA, Mr. Niles, from the Chicago Air Traffic Control Facility. Then Mr. Downes, of the city of Chicago, and the representative from the Air Lines Pilots' Association: Mr. Leonard from the Chicago Regional Operations of ATA; Mr. Cram, president of the National Aircraft Noise Abatement Council.

I do not want to take up too much time explaining this, but we have two problems. One is that we are sitting subject to a quorum call in the House, which should be in about 45 minutes.

We are getting into amendments on a bill that has a 2-hour general debate scheduled. We will not be able to finish this afternoon, certainly. We will be coming back in the morning.

I think, actually, the testimony of witnesses is sometimes made more effective by the questioning. I am not trying to limit you, but I think if there is any way that you can expedite it, it would help us and help the effectiveness of your testimony.

We are not trying to hurry, but we do not want to be faced with a situation at 12 o'clock tomorrow when people have come here from all across the country, that we have to shut the hearings down.

If there is any way you can file or summarize your complete statement, I am sure it would be in the interest of everybody, including the witness. I am not saying that to you, Mr. Cole, just because you are coming next, but I think at this point it is appropriate to say it. I hope it is appropriate for me to say it.

It is a problem that I foresee. I hope it will not happen. We will not accomplish anything unless we can get a full explanation.

The next witness is James D. Cole, fourth ward, Park Ridge, Ill.

STATEMENT OF JAMES D. COLE, ALDERMAN, CITY OF PARK RIDGE, CHAIRMAN OF THE PARK RIDGE NOISE ABATEMENT COMMITTEE

Mr. COLE. Mr. Chairman and members of the committee, I will take your comment seriously and make this as brief as I can.

I do feel I have put a lot of preparation into this, and I would like to make the presentation.

I am James Cole, alderman, city of Park Ridge, chairman of the Park Ridge Noise Abatement Committee.

The Park Ridge Noise Abatement Committee is the only aircraft noise monitoring agency in the O'Hare Airport area equipped to make scientific measurements and keep accurate records of the day to day trespass against the rights of the people on the ground. From its inception this committee has taken a rational approach to becoming acquainted with the agencies involved, their motivation and their policies. We have studied and become acquainted with the technical aspects of the problems. Here we have enlisted the technical assistance of our citizenry, many of whom are outstanding leaders in their special fields.

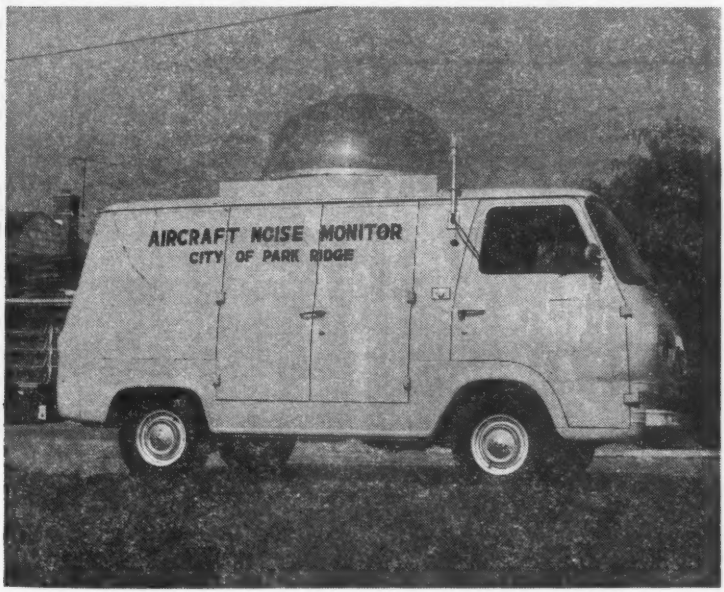
To implement our studies, we have assembled scientific measuring instruments into a small panel truck with an observatory dome in its top. We have a picture of this vehicle here.

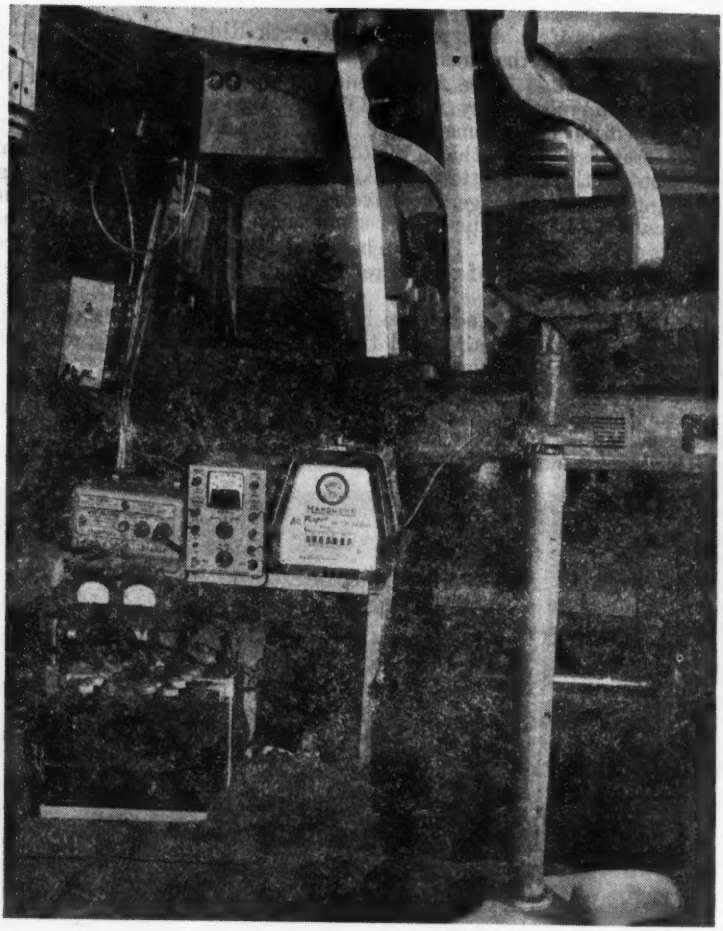
Mr. HEMPHILL. Would you like these made a part of the record?

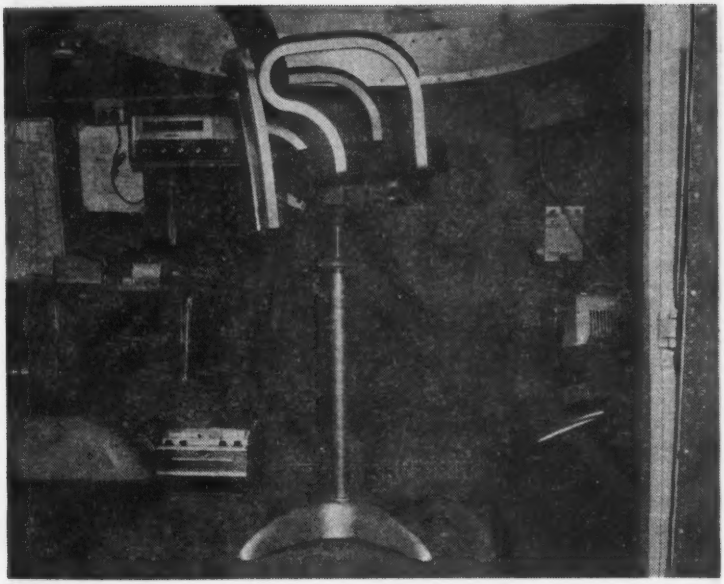
Mr. COLE. Yes, sir.

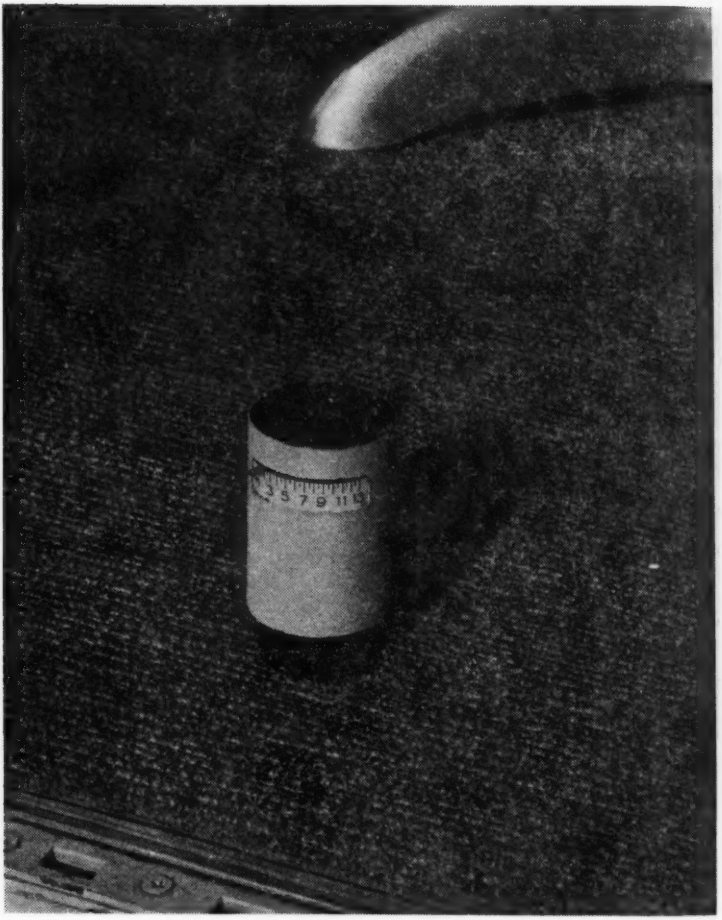
Mr. HEMPHILL. Without objection.

(Pictures referred to follow:)





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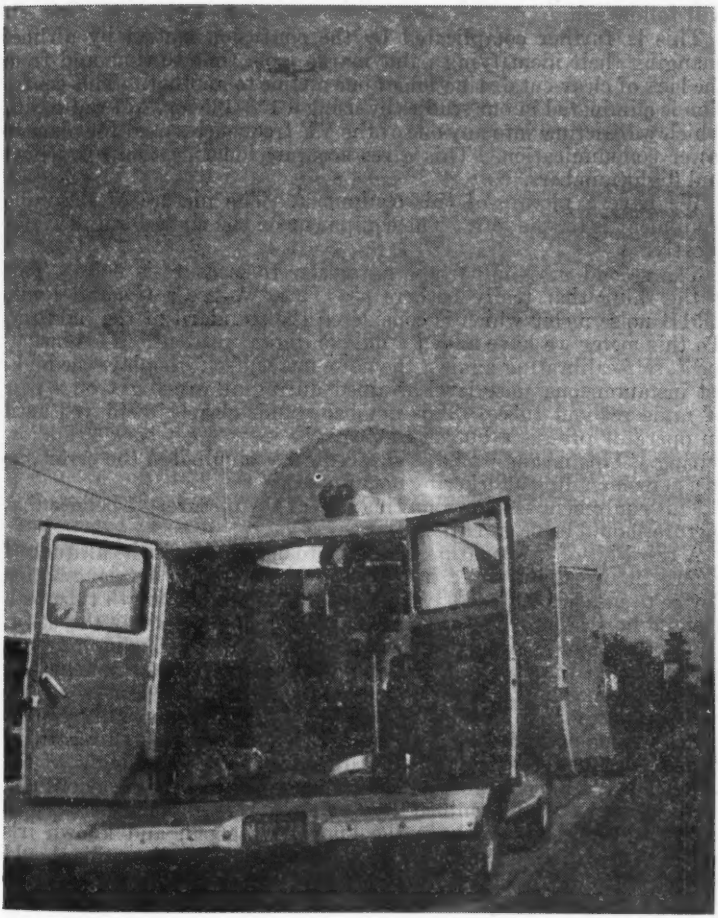

Mr. COLE. We will briefly describe the equipment we use in this vehicle. The aircraft identification is the first essential requirement. We have not been helped too much in this respect so far, because of the airlines' refusal to put underwing numbers on their planes for identification as you and I are required to do on our automobiles with our license plates. However, in the past week, United has volunteered to put underwing markings on their planes, and I would assume others will follow suit.

This is further complicated by the confusion caused by airlines changing their identifying paint marks from time to time and from the lack of clear-cut distinction of one airline to another. This confusion is eliminated in our studies by using a 108–135 mc. AM radio with which we can tune into any one of the VF frequencies used for plane to tower communication. This gives accurate identification of airlines and flight numbers.

We have a picture of this equipment. The picture of the radio equipment is on the left. The equipment on the right I will describe shortly.

The second most important parameter to measure is noise. This is the thing that really bothers us. Here we use a General Radio 1551B noise meter which is considered the standard of the industry. To this meter we have added a unique digital readout. This instrument, self-calibrating against the noise meter itself, displays the highest instantaneous noise level attained during an overflight on a pair of nixie readout tubes. This number stands clearly displayed until an operator presses a button to clear the instrument back to its low setting. This means we have electronically eliminated the error due to a person reading a flickering meter needle.

This equipment is shown on this side of the picture. I believe that picture should be passed around.

A third bit of information necessary to our studies is the altitude of planes in overflight. We have designed and built a triangulation device to measure altitude. This device uses a fixed length tube with a sight hole at one end and a camera iris diaphragm at the other. In use the plane is sighted through the tube and the iris diaphragm is closed so that the diaphragm opening just encompasses the wingspan or overall length of the aircraft. A calibrated scale is used on the iris diaphragm set lever so that a reading of the opening can be taken. A nomogram has been prepared displaying the aircraft dimension in feet, the iris opening dimension, and the height of the aircraft. We have a table of lengths and widths of the various aircraft. Height is determined by laying a straightedge across this nomogram, and if you have the known wingspan and known iris setting, you can read the height of the aircraft. I believe this should be passed around to show the type of equipment we use.

There is a photograph of this device in the pictures I am presenting here today.

With this vehicle and its equipment, we can set up at any location and make accurate observations of the operations in the air, in relative comfort under all weather conditions.

The object of our studies is to be informed so that we can intelligently discuss the aircraft noise problem. Our proposed remedies for specific problems are only made after a careful study. We at no

time advocate any noise abatement procedures that will compromise air safety. We at no time advocate changes that will merely shift the noise from one group of people to an equal number of people somewhere else living under comparable ambient noise conditions.

Our studies have indicated there is room for real reductions in the disturbance to people on the ground. As outlined by Mayor Overbeck, the general classifications of the fields in which we advocate changes that would result in noise reduction are:

1. Flight patterns.
2. Flight technique.
3. Equipment.

Changes in flight patterns to reduce noise are, in our opinion, the most important parameter we have to work with. Here keeping safety and consideration for the maximum number of people in mind, we feel the following principles should be adhered to:

1. (A) Adhere to straight-in and straight-out arrivals and departures to at least 2,000 feet above ground when this does not bring planes over densely populated areas. We are told by pilots that these are the safest possible ways to come in or go out of an airport. The standard airport design criteria of a path 5,000 feet wide and 15,000 feet long from the end of a runway assumes a straight-out departure.

Mr. HEMPHILL. 15,00 feet?

Mr. COLE. 15,000 is right. This is from the standard Air Force Planning Manual.

We have an overlay on a map of the area, which is a photo map of the area at 2,000 feet to the inch. This overlay shows the areas that in the eyes of the FAA should not be used residentially. The color overlay of these areas is superimposed directly over residential areas that existed prior to the formation and use of this airport and the specific areas we are talking about are the areas under here [indicating the bullet shaped 100 decibel contours], and under these things rotated. The concentric circles are the lines that these bullet shaped 100 decibel patterns degenerate into when this fanning off technique is used rather than a straight-out takeoff.

The overlay that we show with these concentric circles, based on the degeneration of these bullet shaped patterns into concentric circles by this fanning-off dispatching technique, shows an area for a specific aircraft. It is a 707–120 Boeing jet with four Pratt & Whitney JT–4–A–5 engines at 12,500 pounds thrust per engine, and a gross actual takeoff weight of 265,000 pounds, adjusted for zero wind velocity and 85° Fahrenheit air temperature.

This information was taken from the study for Boeing Aircraft by Bolt Berwack & Newman of Boston.

The presently used practice of the FAA controllers in their instruction of departing aircraft, of fanning off runway 4, is shown by the concentric circles up on the top. Runways 9 and 14–L take off from approximately the same point, and their circles are considered to be about the same.

The values are shown from the beginning of takeoff roll, so that on 7,500 foot runway 9 the 15,000-foot point taken from the FAA design criteria is the 22,500-foot circle on this map. By their own

criterion, the area to this 22,500-foot line is not fit for residential use.

This pattern has been superimposed on a city that has existed for 100 years. It seems logical to us that if this is the valid criterion for new design, it shown also be the basis for planning and using existing runways. The present practice of turns and circling departures to bring jets under takeoff power over two public and one parochial school in one town, when a straight-out flight pattern would carry them over an expressway, is typical of the inequitable decisions that we come to this committee to get relief from.

When we requested the FAA to consider using straight-out departures on runway 9 last December 14, it was agreed to try this. It was tried by FAA for several weeks, as they agreed. The FAA wrote us and told us that it did not work out due to two reasons. First, it created a noise sensitive area at the point of the outer marker on the ILS for runway 27. Second, it slowed operations down and caused traffic problems in airspace farther out.

Here I might depart from the statement and say that the problem as explained by Mr. Pucinski came to me as somewhat of a surprise, that the thing that was disturbing him was landings, and not takeoffs. This was quite surprising to me. We had assumed that his problem was the same problem as our problem, the takeoffs. But I think, as my study develops, the reason for this will be more apparent.

The first point should be examined in the light of a noise sensitive area, sensitive to planes at 2,500 to 3,000 feet altitude as compared to the alternative noise sensitive area, sensitive to planes as low as 600 to 800 feet under full takeoff power and water injection. With noise diminishing as the square of distance, the new sensitive area is complaining about noise only one-sixteenth as loud as the noise we are subjected to.

These altitudes I show here are based on our studying planes for altitude, driving our truck out of our city limits of Park Ridge and measuring them in other areas as far away as Skokie, to get an idea of in fact how high planes were, rather than, "It looks like that plane is so high." And I would say that our measurements, while they are not accurate right on the button, are in the order of magnitude of 5 to 7 percent accurate.

On the second point, space to accommodate aircraft increases as the square of the distance from the airport. There is certainly more space farther out than there is in close. The corollary brought up here that there is an element of safety sacrificed when turns are made too far out of the sight of the tower, does not seem to be borne out in monitoring the tower radio. As soon as a plane is off the ground, the tower turns it over to 125.4-megacycle radar departure control frequency. This frequency gives radar guidance to departing aircraft, points out other craft, and gives turns to avoid aircraft getting too close together.

The argument of the airlines and FAA that such straight-out procedures as advocated here will cut down on their ability to expedite traffic should be held up to the light by an impartial administrator. It seems obvious to us that such an examination would show the time it takes to go the 7,500 feet to the end of the runway from a standing start to a velocity of 160 knots would be 1.3 minutes. The time it would take to go the additional 15,000 feet the FAA feels an aircraft should go before flying over populated areas at 180 knots would be

another 0.8 minute. There may be certain hours a day when this would impose a hardship. However, there are many hours a day when the traffic is not heavy, yet the same inflexible, inconsiderate departure patterns are followed.

(B) A second criterion to be considered in establishing flight patterns and turns is the noise tolerance of the area over which flights are directed by the FAA. Noise appears loud or not so loud to a person's ear by virtue of the background noise present. An example of this that you all are familiar with is the turning up of the volume on your auto radio in noisy traffic. When you turn off onto a quiet street, you are surprised at how loud the radio has suddenly become at the same volume setting you turned it up to.

The same thing is true of aircraft noise. It sounds louder if it is compared to a lower background or ambient noise level. The ambient noise level varies very considerably from a quiet residential area with a 40-decibel night and 55-db daytime noise to expressways with 80- to 85-db background levels. An airplane at 90 db is not much of a disturbance when the background is 80 db. At 100 db you can hear a plane and know it is there with an 80-db background noise. However, in a 55-db background, noises over 70 db begin to be objectionable. The extreme case of a 100- to 105-db noise in the middle of the night in an area with 40-db background is a very frightening thing. Noise level as compared to background noise is a considerably more valid criterion than just a noise level absolute value.

We had planned to set up and demonstrate to you this phenomenon today. We brought equipment along. However, in checking it out, it was not working as perfectly as we would like, and it would take additional time. In lieu of that, any of you stopping through Chicago are welcome to come out in our "noise vehicle" with us and observe this phenomenon at first hand.

The noise tolerance of forest preserve areas is very high by virtue of the complete lack of people living there. The noise tolerance of farm areas is quite high for the same reason. The tolerance level of industrial areas is high because of high background noise level.

These areas should be platted on a land-use map, and turns should be very carefully defined on the basis of noise tolerance.

2. Flight techniques are responsible for variation in noise level on both approaches and takeoff. Some of this appears due to training and some is an individual matter with the pilot. The training aspect shows up in our radio monitoring as the pilots for certain airlines appear to be more conscious of the noise problem than other airlines. It it quite noticeable the number of times a pilot of Eastern Air Lines will insist on certain runway use for noise abatement reasons. This is also true of American Airlines. We have not noticed this in any other domestic airlines. It is noticeable with Trans-Canada Air Lines.

Also on landings some pilots will come in with planes trim and little power on, while others come in with flaps and wheels down screaming like a banshee.

On takeoff some pilots bound for comparable destinations with comparable aircraft are up higher sooner and throttled back to a slower climb over highly populated areas. These differences can be as much as 10 decibels.

I might point out here for those not completely familiar with decibels that every three decibels the noise level doubles, and, it being a logarithmic thing, it is not just the linear function usually expected. It is quite easy to get a wrong impression from this.

There is a fourth criterion that is a function of the equipment itself. Some airlines have spent more than others on noise suppression. Some airlines have been more judicious in the selection of new aircraft for their fleets on the basis of noise. An example of the former is the very noticeable difference in the American astrojet and the TWA 707 bound for comparable destinations.

And here, by way of comparison, I might say unless the planes are taking off on the same runway for comparable destinations, it is not a very valid comparison, because one plane might be heavy and another one light. So our tests have been done under as nearly equal circumstances as we can find.

The noise level is on the average 10 decibels lower for the American 707 astrojet than a conventional 707–120.

An example of the second point we make on equipment selection is the United Caravelle, as compared to the American 990 Convair. The noise level difference is very much lower for the 990.

We do not have exact decibel values for comparison of these two planes bound for identical destinations, due to the fact that there are not enough 990's flying for us to have made a record of this. By judgment comparison, trained observers notice a substantial difference in noise level. The Caravelle is noisier than a 707; the 990 considerably more quiet.

Another aspect of equipment and its effect on both noise and safety is the operation of high-speed jets and lower speed small commercial and private propeller aircraft intermixed in the approach or departure pattern. These aircraft are not compatible, and the present method of operation is certainly one that imposes a safety responsibility on both pilots and controllers that is not reasonable.

This from the noise standpoint is quite significant, in that we will listen to a jet coming in after, say, a DC–3, and the controller will ask the pilot if he can follow the DC–3. He will say he can try. He will get in sometimes almost as close as the middle marker, and he will say, "I just can't hold the thing. I have to make a quick turn. Give me a turn."

And the chances are they will turn him out over a residential area. He will then come around and make a circle back over residential areas and get back into the flight pattern.

And I am wondering, Mr. Pucinski, if these are not some of the planes you observe at these tremendously low altitudes, the ones that have pulled out of pattern, gone over your area, and gone back into the pattern further back. It could well be that some of these are the ones that are bothering you the most.

This concludes my presentation, Mr. Chairman.

Mr. HEMPHILL. Thank you for a very fine presentation.

Mr. Rostenkowski?

Mr. ROSTENKOWSKI. I would like to compliment the alderman and the mayor on a very fine presentation. I am sure the committee will benefit by it.

Mr. Mayor, you mentioned that in the 14–R runway, when planes are taking off, sometimes they come over the city of Park Ridge going to the west coast.

You also stated that this is at least 2,000 feet. You imagine that, having taken off on runway 14–R, they are up to and over 2,000 feet.

If, however, a plane will take off on runway 4, this is the runway that would go northeast, and there is no possible way then that a plane could come up to 2,000 feet when it is going over Park Ridge, is there?

Mr. OVERBECK. No, sir. It might hit the very edge of Park Ridge, just the tip of it, which is a thing that is tolerable, you know.

Mr. ROSTENKOWSKI. Well, runway 9 is the runway that goes alongside the highway, and it runs out to Taft High School marker 9?

Mr. OVERBECK. Yes, sir.

Mr. ROSTENKOWSKI. At what height would you say this is over Taft High School?

Mr. COLE. On takeoff?

Mr. ROSTENKOWSKI. On takeoff.

Mr. OVERBECK. Somewhere between 2,500 and 3,000 feet.

Mr. ROSTENKOWSKI. In other words, over 2,000 feet?

Mr. OVERBECK. Yes, sir. We are taking this as a criterion [pointing to chart]. A DC–8 will not perform quite as well as this. On the other hand, some of the other planes, some of the lighter planes, will perform much better than this.

Mr. ROSTENKOWSKI. A Caravelle will climb faster, according to you?

Mr. COLE. Yes. It is noisier, but it will climb faster.

Mr. ROSTENKOWSKI. It is not at all possible, then, to have an extremely heavy load taking off on runway 9 and runway 4 going off in both those directions. What I am trying to get at is that 70 percent of the takeoffs, as I understand it, from your testimony, are on runway 9.

Is that not true?

Mr. OVERBECK. No, sir. That was not my statement. I said that 70 percent of our problems are from takeoffs on runway 9. I do not know how many takeoffs are from each runway. I do not think there are figures for that. My guess would be that there are actually more takeoffs from runway 14, or the converse when the winds come from the northwest.

Mr. ROSTENKOWSKI. 14–R?

Mr. OVERBECK. There are a very substantial number from 9. Again, it depends on wind conditions. But with a wind of less than 5 knots, they can take off from almost any runway they want. It is not material until it goes beyond that.

Mr. ROSTENKOWSKI. Mr. Mayor, I have often landed at O'Hare Airport, not realizing which runway I am coming in on. But when I am leaving O'Hare, and I am driving to the city of Chicago, adjacent to runway 27, is that not the landing strip adjacent to the highway that runs into O'Hare Field?

Mr. OVERBECK. Right. This would be coming in on 27, which is the converse of 9.

Mr. ROSTENKOWSKI. Well, I grant you that there are many planes landing at this particular time. But I do disagree with you when you say they are not in the confines of the highway. As a matter of fact, when you are driving out of O'Hare Airport, you almost think that those planes are going to land on the highway.

Mr. OVERBECK. I probably did not make myself clear. I tried to make it clear we thought the FAA was doing a good job bringing their planes in over the expressway. That is why I said our problem was not an arrival problem. It was a departure problem.

I agree that planes coming in, as far as we are concerned, I think they are doing an excellent job of bringing them in over the expressway. But this is not true of departing planes. Departing planes fan out in all directions. Arriving planes come in over the outer marker, and they pretty much follow the expressway. There will be an exception, as Alderman Cole pointed out, when maybe a jet gets too close to a propeller plane and has to get out of the pattern. He will really raise the devil, then, because he will be coming in at 300 or 400 feet, and going around town. But this is the exception that is understandable.

On arrivals, I tried to make it clear I thought the FAA was pretty well keeping them over the expressway. It was the departures.

Mr. ROSTENKOWSKI. Park Ridge is just west of the highway?

Mr. OVERBECK. Park Ridge is northeast of O'Hare. Here is O'Hare. It is north of the expressway.

Mr. ROSTENKOWSKI. You mentioned property values in your testimony, Mr. Mayor. Do you have any proof, other than that of the realtors in your area, that a person can lose 20 percent on his investment since the advent of O'Hare Airport?

Mr. OVERBECK. I personally sold a home of mine in Park Ridge and moved to another, and in 3 years it declined 20 percent over the offer I had had before that.

In respect to vacant property, I represent many clients who are buying property in the area for industrial-manufacturing uses. I know one I just finished a deal for. We could have bought the same property 5 years ago for less than half of what he has to pay for it today. This was vacant property.

Mr. COLLIER. I think it would be apropos to mention at this time, too, that in these fine communities in my district there are many other assets that tend to offset to some extent these devaluations. This might not be true in other areas.

Mr. ROSTENKOWSKI. What was, Mr. Mayor, the population of Park Ridge 10 years ago?

Mr. OVERBECK. In the neighborhood of 23,000.

Mr. ROSTENKOWSKI. What is the population now?

Mr. OVERBECK. 35,000.

Mr. ROSTENKOWSKI. It has gone up 10,000?

Mr. OVERBECK. That is correct, sir.

Mr. HEMPHILL. Mr. Younger?

Mr. YOUNGER. Mr. Chairman, I think the record should show that the reason why noise was not made a part of the law when it was written in 1958 for the FAA was that noise was not a problem then.

And you have made much about what Congress should have done, and what should have been enacted, and we did not know about the problem when we enacted that law. And I would like to have the record show that, in defense of our committee. We could not legislate on something that was not present.

Now we are in the process of trying to legislate, and we are trying to get the facts.

Second, in your efforts, you have established this noise abatement committee for your city. Is that just representing the city itself?

Mr. OVERBECK. Yes, sir.

Mr. YOUNGER. Have you ever tried to get all of the officials in on a joint noise abatement committee?

Mr. OVERBECK. We have made some attempt.

Mr. YOUNGER. Well, why I mentioned this: The San Francisco International Airport has been successful, in getting not only the representatives from the cities that are involved, but all the airlines, the air pilots, the FAA, and the city of San Francisco, which owns the airport, and they have regular meetings. They jointly discuss all of these problems. And they have meetings at least once a month, and they have set up a bureau to receive complaints, and they can tally those complaints now.

If people are disturbed, they have a place to phone. They keep a record of those phone calls, so that they know how many people are really disturbed by some plane that is going out. They get the hour, the time of the schedule, and they know what plane it is.

You have not made an effort to get all of the factors involved, in your committee?

Mr. OVERBECK. In other communities, sir?

Mr. YOUNGER. No; the airlines, the management of the airport, the FAA, and the pilots' association.

Mr. OVERBECK. We have not made any attempt to have them become members of our committee.

Mr. YOUNGER. I would suggest that that would be a good idea to operate on. We have found it very successful at San Francisco International Airport. We have not been able to stop the noise, but we have been able to get a lot of agreements as between the pilots and the proper use of the runways, to as far as possible eliminate the noise, so far as you can eliminate it, by the proper utilization of the runways, the turns, and so forth.

Mr. OVERBECK. Could Alderman Cole comment on your observation, sir?

Mr. YOUNGER. Yes.

Mr. COLE. I have been with the committee a little longer than our present mayor, since this was started under a previous mayor, and there was work done prior that I am acquainted with.

We did try to enlist the assistance of other communities to work with us. The only one we had any reasonable amount of success with was Des Plaines. They sat in on a few of our meetings, and we sat in on a few of theirs. The other communities expressed a complete disinterest or mistrust or whatever you might call it. I do not know.

We did feel that it is a very unfair and inequitable and unsafe thing to have these complaints come piling in on the people at the FAA where they are trying to operate a control tower and get airplanes down out of the sky, and not to be bothered by people who are disturbed, scared, hysterical, and so on, calling them. And we have been rather vehement in voicing our thoughts on this point.

And at one time, we felt that it was the responsibility of the Air Transport Association to put a good-natured girl with a thick skin on a telephone and receive these complaints and take this load off the back of the Federal Aviation Agency. However, we have had as

many meetings as I think most people have, and we have not been successful in getting anyone to express an interest in doing this, although we do feel that it would be a proper thing and a very constructive thing and a safer thing for the whole area community, and not just our city. But our attempts have not met with success.

Mr. YOUNGER. I think that is unfortunate, because I think with a united effort you can get a better approach to the problem when you are all sitting around the table, with the same objective in mind.

Mr. COLE. I have been very, very aware of this, and I have devoted a lot of time to trying to create this interest. As short a time ago as a month ago, I sat down with a group in an adjoining town and talked with them about this; but nothing came of it.

Mr. YOUNGER. That is all, Mr. Chairman.

Mr. HEMPHILL. Thank you.

Mr. Collier?

Mr. COLLIER. Thank you, Mr. Chairman.

While as a matter, I might say, of personal political philosophy, I do not usually advocate either the expansion or the creation of bureaucracy, I would say, gentlemen, that you have made a very excellent case for establishing through the FAA or some other agency a need for a mandate of responsibility in this field, where it deals with the problems of ground noises.

And in view of the very industrious program of airport construction, which has already been presented to this committee, and in further view of what we must recognize as a vast expansion of air travel in the years ahead, it would seem that the time is quite ripe that we establish within the FAA or as a separate agency a body that will deal with this problem, which is not going to be reduced, but which might well be increased in the years ahead.

And for whatever other relief may come out of these hearings to your particular problem, or to that problem that is found almost everywhere where we have airports, I would hope that some action along these lines would be taken.

Now, to either of you gentlemen I would like to direct this question.

Going back to your testimony: Where you have frequent departures on particular runways at particular times, have you found that there are other runways that could accommodate these departures, which at the same time are not being utilized?

Mr. COLE. I think maybe having sat up in this vehicle listening to the radio until 1:30 or 2 o'clock some morning to establish this, perhaps I can speak authoritatively on it.

We have listened to departures sent out on runway 9 with directions to be given as late as 1:30 in the morning, certainly after 11 o'clock, when there are very, very few flights going on, and at times when the weather was clear, and there was substantially no wind. By that I mean the wind was under 5 knots by the wind velocity indications given by the O'Hare tower at the time that this was going on.

I have observed this time after time, where these planes could have gone out runway 32. The wind would not have bothered them. There was no weather to bother them. They were given runway 9 out over a densely populated area, I assume to expedite their getting to where they were going quicker. I can see no other reason for it.

For this is a time when the pressure of traffic certainly would not require that they take this runway out over populated areas of either Park Ridge, Des Plaines, or Chicago, depending on where their final destination was. They would not have to go this way.

Mr. COLLIER. I intend to pursue this particular point with other witnesses. I simply wanted to firm up in my mind what is probably your contention that the runways that are not being used could be used in a manner that would not put excessive tackage on one particular runway at a particular time.

Mr. COLE. Yes. These are the odd times of day, when there are small numbers of flights, that is, after 11 in the evening, shortly after 10 in the evening, until 7 in the morning, when the citizens are particularly disturbed by flights, because the town is quiet. All the residential suburban areas there are quiet at that time, and planes coming over are particularly disturbing to people.

Mr. COLLIER. Let me just ask you one more question.

Has this question arisen, or have you indicated your thoughts on this matter, to the FAA, in your discussions of your problem over the series of meetings you have had in the past?

Mr. COLE. We have discussed this with them prior to my sitting up and listening to these flights, at which time a letter was written to us by a Mr. Pyle of the FAA some time back, in which he said that there are rules, night flight rules, that do not allow the use of these runways for turbojets unless conditions require that they do.

And in our observations, we seem to find turbojets coming over in the middle of the night, when the wind did not appear to be too great, and we are cognizant of the fact that in the town you can feel that there is no wind, and out in the country there will be quite a brisk one, so although we had radio equipment where we could actually listen to the tower and listen to their wind velocity directions that they give to pilots on request, which we assume to be accurate, we were able to establish that in fact there are many times when these rules are not followed, and there is no apparent reason for their not being followed.

Mr. COLLIER. Do you in your opinion think that there is merit to the ruling in the cases where they are using particular runways at particular times, or do you feel that this is a rule that is without any real justification?

Mr. COLE. No, I think this is a good rule, and I think it should be couched in the very careful phrases that these things are couched in, so that if there is any wind problem or weather problem or safety problem that requires that they send a plane out a certain way, certainly we are the last one to object to this.

But under calm, or clear nights, when a plane could go out over an expressway to the northwest, be in the air a little bit longer, perhaps, going to its destination, but be over open country, not disturbing the people—I think this would be a real significant help to all of those who appeared before you, here, ourselves and the city of Chicago. I think it would be a very significant help to these people. And I think if this were a rather rigorous rule, that had only these outs based on safety, which we certainly feel are warranted, this would be a very significant forward step to insure the peace of the night, so to speak.

Mr. COLLIER. Thank you very much.

That is all I have, Mr. Chairman.

Mr. HEMPHILL. Mr. Devine?

Mr. DEVINE. Congressman Collier spoke to me previously about the caliber of the officials in Park Ridge, and I want to compliment both you, Mr. Mayor, and the alderman, on the deep study you have made. You have not come in here with any fly-by-night guesses or emotion-type thing. You have based it on facts, and I think you should be complimented.

That is all I have, Mr. Chairman.

Mr. HEMPHILL. Did I understand it that the gentleman is a lawyer?

Mr. OVERBECK. Yes, sir.

Mr. HEMPHILL. Under the final recommendations, you recommended that section 102 and 103, I believe it was, of the Federal Aviation Act of 1958, be amended. But I find in looking into the Federal Aviation Act that the authority is already imposed to some extent, if not fully, in the Administrator. So it occurs to me that perhaps we in the Congress here are wishing back into our lap the very problems we created this regulatory agency to assume. And that concerns me a great deal.

I make that comment, because we direct your attention to it, not that I want an off-the-cuff opinion right now, but you might look into it and see what you think about it and communicate with us further.

Now, you said in your testimony, as I recollect, that you are going to build a new school somewhere in the complex of this airport and its traffic pattern. Where was that school, if you will direct our attention to it, on the map, there?

You went on to say there was a Catholic school here, and perhaps some others.

Mr. OVERBECK. Right here, sir [indicating]. Notice if runway headings are maintained, this new school is not at all affected by the problem we are talking about. It is only when you get the circling processes that it becomes a hazard to the school.

Mr. HEMPHILL. You are still going to build the school, whether we do anything about the noise abatement or not? The school is still going up, is it not, if we do not pass the legislation?

Mr. OVERBECK. I imagine so. But that is under the school board's jurisdiction, sir. The schools are governed by a school board in town, and not by the city.

It would be right about there.

Mr. HEMPHILL. And that is right in the area where you say it is the most difficult.

Mr. OVERBECK. With the present circling, with the present fan-off procedure; that is correct.

Mr. HEMPHILL. I believe despite the noise abatement problem, you have had quite an increase in population, have you not?

Mr. OVERBECK. Yes, sir.

Mr. HEMPHILL. Now, did you discuss this with the people in charge of what we call traffic control? Because the alderman described the procedure in which he switches his ground control over to his other control. For the purpose of that, the ground control takes somebody off, and so forth. Have you discussed how much percentage of the traffic would have to be eliminated to accommodate everybody and still use the same method?

Mr. OVERBECK. No, sir, I do not think we pinpointed it in that manner.

Mr. HEMPHILL. I am somewhat concerned, because Mr. Pucinski testified that the difficulty was coming in to land, and you testified the difficulty was in taking off, which are two entirely different operations.

But I might say the pilots flying the planes know which is the most difficult under ordinary circumstances, except when you have to do the go-around, when your flaps are down. You have to give it the needle. To pick it up then is a whole lot worse than any other maneuver except power failure or partial power failure on takeoff, which is most times fatal.

Mr. COLE. It will open your eyes when that happens.

Mr. HEMPHILL. We have to be concerned with all the factors. The safety factor is not a strawman to us, of course, because it is our responsibility to make sure that this agency takes care of safety.

The next factor, it seems to me, is whether or not you people want to sacrifice the transportation at Chicago by limiting the number of takeoffs and the number of landings, which would be ineligible, it seems to me, if you follow a straight-out takeoff, or straight-out approach at all times. You just cannot get that many planes in the air unless you make the turns.

Mr. COLE. Well, the alternative to that seemed to be scheduling. It is not realistic to schedule five planes to go into the air at one instant, as the schedule on the board reads, that these five planes will take off at 12 o'clock right on the button. So if they were spaced out 5 minutes apart, there would not be this problem.

Mr. HEMPHILL. That is true; but if they were spaced out 5 minutes apart, 5 planes, it would take up the space ordinarily to get 25 planes off the ground, because if you go out here to National or go out to Chicago, you will find the boy up in the tower has blocks there, and he has runways which do not converge, so he can take one bird off on 2–7, and another off on 3–2, if there is no wind. He makes the 2–7 take a left turn and the 3–2 a right turn, and they climb up to assigned altitudes, and their destinations may be the same or entirely different. It does not make any difference. He can still get him stacked just like he wants to.

And that concerns me, because the fact that they schedule five airplanes at the same time must mean that they can get into and out of the field, and get into and out of the other fields to which their destination directs them better his way. Otherwise, it would be stupid to schedule it in this way.

Mr. COLE. Certainly we do not want to get involved in that aspect of it. And we do feel, to answer your question specifically, that it may be wise, in the overall look at this thing, that there be some sacrifice in the absolute maximum use of an airport for the benefit of the citizens on the ground.

Now, if this was a small sacrifice for a great gain—I mean I cannot evaluate this real accurately, nor as objectively as I should probably, but we feel that perhaps some small sacrifice could be in order.

Mr. HEMPHILL. I might tell you the pilots have told me they do not like the procedure, because when you get one of these big planes off the ground, you do not like to turn at 400 or 500 feet. It is not the pilot. It is just that he is in a saturated traffic area in which he has to turn, or else they can never accommodate all the traffic.

If he has a piston type C–47, which is still in existence, climbing out at 120, and behind him is a 707 climbing out at 160 or 180, or I do not know what their climb is, the guy at 120 cannot get out. And the 180 either has to turn or take a chance. And the regulation says you cannot go within 300 feet and you must give right-of-way.

So I am not trying to argue with you. I am just telling you the immensity of the problem that you are discussing when you propose a particular traffic pattern, because I am sure—I do not know the people in Chicago, but I am sure the people working in the tower, from the little bit of experience I have had, have a terrific time keeping that thing moving.

Mr. COLE. We are aware of this. The job they do is amazing. No question about it.

Mr. HEMPHILL. They do a marvelous job.

Mr. COLE. A terrific job.

Mr. HEMPHILL. You can talk about the Chicago radar control all you want to, and you can read that radar, but still you have to ask the fellow to look up and see if he has not somebody 5 o'clock high and 5 o'clock low, and where he is, because it depends on the visual abilities of the pilot. I think that is another problem.

The problem we have here is whether or not the airplane is going to go over your town, or going to go over Chicago.

Mr. OVERBECK. Could I make a comment on that?

I think I have failed to get across one thing. We are not saying, "Send them over Chicago." We are not saying, "Send them out 20 miles to the lake." I think that would be an unrealistic thing. You would really stack up. You would never get planes out of that airport. We realize that.

We are talking about 2,000 feet, or 2,500 feet. If that is over Park Ridge, fine. Make the turn. You are at a reasonable altitude.

We are talking about somewhere between eight-tenths of a minute to 1 minute on runway heading, between where they are making the turn now at 500 and 600 feet to 2,000 feet. We are not talking about 20 miles out.

Now, this is where I think the weighing of conflicting interests comes in. Maybe you have a circumstance where you are so stacked up you have got to make your turn at 400 or 500 feet, even though it is an unsafe turn. Maybe you have got to make it.

Mr. HEMPHILL. It is not unsafe.

Mr. OVERBECK. It is not as safe as a straight runway heading.

Mr. HEMPHILL. No turn is as safe as straight flying. That is just elementary in flying, because of your centrifugal force, and other factors.

Mr. OVERBECK. Someone of a neutral nature, whose primary duty is not getting planes in the air, should make the decision as to how much traffic will be flown at any particular time, making a weighing of the necessity of getting planes off the ground against the noise abatement factor. I do not think it is black or white. We are saying there should be a neutral arbitrator weighing both the noise abatement desirability of the type of pattern we suggest and the necessity for getting planes off the ground.

I think even under the most desirable conditions there would be a time when this noise abatement officer would say, "You have too many planes stacked up. Fan them out."

You have to get them off the ground. I realize that. But other times, he will say, "No, hold this plane 2 minutes more."

You see? These rules would, I think, be promulgated and be formed through experience and use. It is weighing conflicting interests, which I think is part of our way of life.

Mr. HEMPHILL. Well, let me say I think the fact that your problem is here will certainly arouse the concern of all of us, including the people in the tower and the FAA. I am sure everybody is concerned and everybody wants to help with questions, because we want to find out if there is some area of exploration that might give us some lead to something we can do, or vice versa.

Any further questions?

Thank you very much. We certainly appreciate your courtesy, and your coming.

Mr. HEMPHILL. The next witness is the Honorable Herbert H. Behrel, mayor of Des Plaines, Ill.

We certainly are glad to have you.

Mr. ROSTENKOWSKI (presiding). Mr. Mayor, we are certainly very happy to have you here to give us testimony.

Without any further delay, would you kindly proceed, sir?

STATEMENT OF HON. HERBERT H. BEHREL, MAYOR, DES PLAINES, ILL.

Mr. BEHREL. Thank you very much.

My name is Herbert Behrel. I am the mayor of the city of Des Plaines.

First, before I go into my statement, I would like to say it is a privilege and a pleasure to be before your committee and make these comments.

We have no statistical information, and we have leaned very heavily on our sister city, Park Ridge, Ill., and on behalf of the city of Des Plaines and before this committee I would like to congratulate Mayor Overbeck and Alderman Cole for the wonderful presentation they have made here before me today.

As the mayor of the city of Des Plaines, Ill., I am pleased to appear before you today to present our views concerning noise abatement at O'Hare Field.

We are a city of over 41,000 inhabitants, by official U.S. census completed May 15, 1962, and our population is increasing at the rate of approximately 2,300 each year.

Geographically, we are located immediately north of O'Hare Airport properties, our southernmost boundary being at the northeast corner of Mannheim Road, Highway 45, and Higgins Road, Highway 72.

We come here with open minds as we are not so naive as to believe that there will be no noise from the operation of planes at O'Hare Airport. What we are seeking is the possibility of some relief from the present operation of planes.

We recognize the responsibility of the FAA to set patterns for landings and takeoffs in the most efficient manner. We recognize, too, that the airlines are interested that these landings and takeoffs be performed in the most economical manner coincident with safety regula-

tions. We further recognize that airline pilots are interested in the best and safest operations of landings and takeoffs for their passengers, as well as themselves.

We do believe, however, that some of the present patterns of operations do not take into consideration the inconvenience of noise to people on the ground. By this statement, we mean that we think it is possible, by careful study, to enlarge on some of the present landing and takeoff patterns to keep the jet planes in a somewhat longer and straight takeoff pattern, before making turns either to the right or to the left for their respective destinations.

Any additional distances that these jet planes may operate in this straight pattern, especially in takeoff, would increase the height before turns to the right or left, and any additional height would lessen the noise experienced on the ground.

There seems to be some question, from the interpretation of the Aviation Act, whether the FAA has specific jurisdiction with respect to noise abatement. We concur with our sister city of Park Ridge, Ill., in the thought that it will take action by Congress to either specifically delegate additional responsibilities to FAA concerning noise abatement, or to set up a separate noise abatement agency with the proper powers to cooperate with the FAA and the airlines in the design of flight patterns which will include noise abatement consideration.

We submit for your consideration, technical data concerning the military climb corridor concept:

Recommendations to Federal Aviation Agency re: Aircraft noise control and flight safety to the city of Des Plaines:

1. That the military climb corridor concept be instituted at O'Hare for all takeoffs. This flight pattern which has been put in effect at such military aircraft bases as Bunker Hill, Ind., Selfridge Air Force Base, Mich., and the Truax Air Force Base at Madison, Wis., establishes a corridor defined by one or more parallel runways into which no aircraft other than the plane taking off is allowed to enter (i.e., no intersecting lanes) during the period that the climb corridor is in effect.

This concept enables aircraft to ascend as rapidly as possible to a minimum elevation of 4,000 to 5,000, or 10,000 feet, and requires the plane to proceed to the end of the corridor (such as the outer ILS marker of the 320-degree runway) before the aircraft is permitted to turn into one of the onflight vectors. The flight control center would establish the climb corridor appropriate for the wind direction on the particular day, although the 320-degree runway heading should be used as frequently as possible, since the density of population appears to be least in this direction for the Northwest area (of debatable or perhaps of lesser merit for other areas). A 140-degree corridor (southeast of O'Hare) and/or a 90-degree corridor (east of O'Hare) could be simultaneously or alternatively provided.

One of the many advantages of the military climb corridor concept is that jet aircraft climb rapidly (generally at from 2,000 to 3,000 feet per minute) and attain high altitudes, resulting in a low noise level on the ground before the aircraft flies over residential areas.

A second advantage of the adoption of this concept is the fact that airlines will readily comply with such a regulation, since the planes attain high altitudes rapidly and the tremendously greater rate of fuel consumption accompanying jet aircraft flight at lower altitudes is

substantially reduced, resulting in a considerable savings in fuel consumption by the airlines and allowing additional savings in fuel for such activities as weather or traffic holding delays at the flight destination.

A third advantage accompanying adoption of the military climb concept is that planes taking off in the corridor are capable of attaining altitudes in excess of 3,000 to 5,000 feet by the time they pass the middle ILS marker and in any event prior to passing the outer ILS marker, thereby enabling aircraft coming into the airport under ILS to land in the same corridor, since these aircraft would turn into the corridor at 2,200 to 2,500 feet over the outer marker, and in the event that the control tower were to shift their landing pattern to the 140-degree runway heading (on the same or parallel runway, except from the southeast), the landing plane could start the left or right hand turn between the middle and outer ILS markers while still maintaining 2,200 to 2,500 feet altitude.

2. In general, the ILS landing approach system is approved, provided that all the aircraft be maintained under the IFR (instrument flight rules) within the radar approach control system of the airport. By maintaining rigid enforcement of the IFR system rather than permitting VFR (visual flight rules), a much more orderly system of landing and takeoff patterns is maintained.

Under the IFR system, the radar control center maintains a positive control over flights, whereas the VFR system permits the pilot to take any convenient, haphazard route the pilot may choose to land his craft. The use of the VFR system results in aircraft making sharp turns off from the runway heading, flying over densely populated areas under conditions of minimum altitude (and accordingly, at maximum noise level), generally for the purpose of saving fuel or making up flight time. The recommendations for the maintenance of the IFR conditions applies to all commercial aircraft and principally jet aircraft.

3. That the airlines replace other jet engine designs with the "Jet Fan" engine (used, for example, by American, Northwest, and some other airlines) which has the lowest noise level yet, and greatest thrust of any strictly jet engine currently in use. Contrasted to this engine are the so-called noise-suppressed engines, such as the Caravelle engines, which are among the noisiest.

4. The advantages of the military climb corridor concept are many; some of these of interest are as follows:

(A) The runway heading climb-out procedure to maximum possible altitude before oncourse turns, gains much in providing for greater flight safety, as well as satisfying the need for decreased noise.

(B) A straight-out climb to a minimum of 5,000 feet altitude, for example, allows a pilot time to gain sufficient altitude to maneuver his craft under adverse conditions, such as control or engine malfunctions, in greater safety.

(C) Altitude to a pilot is his greatest insurance; the more he has the better.

(D) A bonus advantage gained is time: Time to make accurate judgments and decisions to initiate any required emergency flight procedures for a safe return to the field. This added time also allows the pilot, in the event of plane malfunction, to alert the field of his

emergency condition and of his intentions to allow ground-based emergency procedures to go into effect, and further allows the pilot sufficient time to better cope with the situation.

It should be well known to the members of the CAB and FAA that such conditions have been lacking to a great degree in recent air disasters involving aircraft on takeoff accidents—both at O'Hare and Idlewild.

5. It is completely understood by the city of Des Plaines that the military climb concept herein proposed presents technical problems to existing air traffic procedures now being used at O'Hare Field and, in particular, to those now used involving aircraft letdowns and approaches.

We of the city of Des Plaines feel that in many areas existing procedures at O'Hare are outmoded since the great swing to pure jet and propjet high performance aircraft by the airlines. These changed conditions demand a speedy review and investigation of existing procedures before we are faced with more complaints of noise and the ever possible air disaster that hangs over our city on an ever-increasing scale.

In closing, I wish to add that we recognize that our close proximity to O'Hare Field is good for Des Plaines, in that it attracts new industry, which brings additional business to our commercial enterprises; it brings us new residents, who want to be near their work in the immediate area of O'Hare Field. Therefore, we want to be good neighbors, and are sure that the operators of O'Hare Field want to be good neighbors also.

In summary, we respectfully request that serious consideration be given, as indicated, to a proper agency with powers to regulate and control noise; and to recommend that the FAA, CAB, and the operators of O'Hare Field adopt procedures as suggested in the military climb corridor concept.

It is our firm belief that these procedures will result in a minimum noise level in not only our own, but other surrounding communities, as well, and will, at the same time, maximize flight safety.

That is the end of my presentation, Mr. Chairman.

May I add that you have on your desk a carbon copy of a letter from Mr. Schlaver, who is the president of the village of Mount Prospect. Mr. Schlaver could not be here today, and he wrote me a letter, of which I had copies made, and I would like to submit it for your record.

Mr. ROSTENKOWSKI. Thank you, Mr. Mayor.

(Letter referred to follows:)

VILLAGE OF MOUNT PROSPECT, ILL.,
July 13, 1962.

MR. HERBERT BEHREL,
Honorable Mayor,
City of Des Plaines,
Des Plaines, Ill.

DEAR MAYOR BEHREL: As the chief executive of our neighboring municipality, will you please convey Mount Prospect's views to the special congressional committee regarding jet airplane noises and dangers emanating from nearby O'Hare International Airport.

Residents of Mount Prospect, who like those of Des Plaines and Park Ridge reside in the landing and takeoff patterns of O'Hare, have told me by letter, petition, and personal visits of their disturbance over increased noise from jets. They are also concerned over what they term "low flying patterns."

These same residents have indicated that they favor the adoption of the military climb corridor concept, such as you advocate, in which aircraft climb rapidly and attain high altitudes quicker, resulting in low noise level when the jets are over residential areas.

It certainly is the obligation of our Representatives in Congress to consider the wishes of our residents, who are not asking for curtailment of O'Hare activity, but instead ask that it be carried out with as much safety and elimination of noise as can be attained. Such a goal can be established by the airlines and it will be speeded through congressional direction.

Sincerely,

CLARENCE O. SCHLAVER, *President.*

Mr. ROSTENKOWSKI. I wonder if you would be kind enough to point out to us on the map exactly where the city of Des Plaines is, for the benefit of the committee.

Mr. BEHREL. Yes, I will.

I might say as far as the city of Des Plaines is concerned, our condition is no different than Chicago or Park Ridge, except that it probably affects a different runway. In other words, it is pretty much the same.

This is O'Hare Airport, of course [indicating]. Higgins Road comes right along here. The city of Des Plaines lies from this point in this area north, here. This is all Des Plaines, north of the northwest toll road.

Our problem is the same as the city of Park Ridge in that the planes taking off on runway 14–left come out here a short distance, and then at low altitudes they will begin to veer to the left, cutting right over the business district of our town, and also our residential area.

There are times when runway No. 4 is used. These planes also will turn and go over this way and out over their destinations.

So from those two runways we have the same problem that Park Ridge has on runway 9 going the other way.

But this is all Des Plaines, lying along the north-south toll road and the northwest toll road. All this area in here is the city of Des Plaines.

Mr. ROSTENKOWSKI. Your problem, then, Mr. Mayor, is very similar.

Mr. BEHREL. Very similar. We have little or no trouble with approach, because most of your airplanes coming in on this runway from the northwest stack up back here, I would say all the way back to the Inverness Country Club, some 14 miles away from us.

Mr. ROSTENKOWSKI. What is in that area up there [indicating]?

Mr. BEHREL. It is sparsely settled, except that they do come over a short tip of Mount Prospect. I would presume when they come over Mount Prospect, they are probably at around 1,500 feet. But in a glide pattern, they do not create the same amount of noise they do on a takeoff.

Mr. ROSTENKOWSKI. Your principal problem, then, is on takeoff?

Mr. BEHREL. Principally on takeoff.

Mr. ROSTENKOWSKI. It seems clear most of the problem here is with takeoff.

Mr. BEHREL. When they put that thrust into these jet planes, they make quite a lot of racket.

Mr. ROSTENKOWSKI. And you agree that the Caravelle is more likely to make noise in your area than the jet DC–8 or 707?

Mr. BEHREL. I would say this is my personal experience. I live in an area where these planes come over my house. And while this is a visual observation, they do not look like they are more than a thou-

sand feet over my house at any time. And the Caravelle, the two-motor job, makes the most noise, very definitely.

Mr. ROSTENKOWSKI. Do you know of any other commercial airport that has invoked this military climb corridor concept?

Mr. BEHREL. No, I do not, sir.

Mr. ROSTENKOWSKI. This was an original idea of yours at the airport?

Mr. BEHREL. I might say we have an Aeronautics Committee in our town. My alderman unfortunately works for a living, getting $25 a month, and he could not come down here today. He had to stay home and work. So the committee drafted this military corridor concept from information they had received in their committee and investigations. And as far as I know, it is being used only at military fields at the present time.

Mr. ROSTENKOWSKI. Mr. Mayor, what is the population of Des Plaines now?

Mr. BEHREL. 41,209.

Mr. ROSTENKOWSKI. What was the population of Des Plaines 10 years ago?

Mr. BEHREL. Well, let us put it this way. We had an official census in 1960, at which we were 34,886.

Mr. ROSTENKOWSKI. You have increased 11,000?

Mr. BEHREL. 7,300 in a year and a half. And in 1950, it was 14,750.

Mr. ROSTENKOWSKI. How are real estate values in Des Plaines?

Mr. BEHREL. Tremendous.

Mr. ROSTENKOWSKI. Are they affected at all by the air corridor in which our jets take off and land?

Mr. BEHREL. I have not made any study, nor have I talked to any of our real estate men about any properties near the airport. However, anything along Touhy Avenue and the toll road, we are seeking to be annexed to M–2, which is light manufacturing, because we do not feel it is suitable for homes.

Mr. ROSTENKOWSKI. Thank you, Mr. Mayor.

Mr. Collier?

Mr. COLLIER. Thank you.

I would like to comment, Mayor Behrel, on a very concise and comprehensive statement. It is quite apparent that the problem which the folks in Park Ridge face is akin to that of the residents of Des Plaines.

And, Mr. Chairman, at this time I would like to make a unanimous consent request that we be permitted to insert in the record at this point the statement of the Honorable Edward E. Bluthardt, who is president of the village of Schiller Park, which is sort of a sister city to whose representatives have testified here today, departing from the usual procedure; and I think that President Bluthardt would have one little different problem, however, from the discussion that I have had with him. That is, his problem is not entirely that of the takeoffs, but rather those of the landings at O'Hare.

Is that correct?

Mr. ROSTENKOWSKI. If it is different with the Des Plaines problem, it is with landings. The problems that are existent today are in takeoffs.

Mr. COLLIER. Would it be in order, despite the irregularity of protocol, here, to permit Mr. Bluthardt to just touch on this point, inasmuch as his statement will go into the record?

Mr. ROSTENKOWSKI. I am afraid we haven't proceeded to Mr. Devine in questioning Mayor Behrel.

Mr. DEVINE. Reserving the right to object, Mr. Chairman:

Where is Schiller Park on the map, here?

Mr. BLUTHARDT (Edward E. Bluthardt, president, village of Schiller Park). We are at the southeast edge. In fact, it would be right in this vicinity, here [indicating]. In fact, at least 150 acres of Schiller Park is also within the boundaries of O'Hare Field. We have homes within 1,000 yards of O'Hare Field. It would be in line with runway 32–right, I believe.

Mr. ROSTENKOWSKI. You are excused. Thank you very much, Mr. Mayor.

Our next witness is Charles H. Williams, staff assistant to the Director, Air Traffic Service, FAA.

STATEMENTS OF CHARLES H. WILLIAMS, STAFF ASSISTANT TO THE DIRECTOR, AIR TRAFFIC SERVICE, FAA, AND GEORGE NILES, FACILITY CHIEF, AIR TRAFFIC CONTROL TOWER, FAA, CHICAGO-O'HARE AIRPORT

Mr. CHARLES WILLIAMS. Mr. Chairman, I would like to ask your indulgence while we try to get an additional easel up here. We have a chart explaining our operational procedures in handling the traffic in the Chicago area. I think it would be very informative.

Mr. ROSTENKOWSKI. The committee will suspend for 2 minutes.

(Brief recess.)

Mr. ROSTENKOWSKI. The committee will come to order.

As previously indicated, our next witness is Mr. Charles Williams, and with him is George Niles, facility chief, air traffic control tower, Chicago O'Hare Airport.

Mr. CHARLES WILLIAMS. Thank you, Mr. Chairman.

Prior to submitting our prepared statement, Mr. Chairman, let me say that my name is Charles H. Williams. I am the staff assistant to the Director of the Air Traffic Service, FAA.

I have responsibility in the FAA headquarters to coordinate all of the problems associated with aircraft noise.

I would like to thank you for the opportunity to appear before you and present, on behalf of the Administrator, our views on the complex aircraft noise problem and its impact on the communities surrounding the Chicago O'Hare International Airport. Our statement will be in two main parts. First, we would like to acquaint you with the policies, plans, programs, and responsibilities concerning the overall noise problem from our Washington headquarters' viewpoint.

Second, we would like Mr. George Niles, the Chicago O'Hare air traffic control tower chief, to discuss the detailed operations and procedures currently used at the O'Hare International Airport in order that you may gain an appreciation of the complexities attendant to aircraft operations in the Chicago metropolitan area.

The Federal Aviation Agency has recognized that the aircraft noise problem, particularly in the vicinity of our Nation's airports is indeed serious. It is a vexing problem. The large, fast airplanes of this era—the same ones which contribute millions of dollars to our overall national economy—the ones that enable us to maintain our leadership in world aviation—are as noisy as they are economically stimulating. The noise problem which they create involves many diverse factors such as compatible land usage in the vicinity of airports, safety of flight operations, our national requirements for air commerce, and others that are not susceptible to a single solution. A continuous, cooperative effort on the part of all of those who share responsibility will be required to keep the problems within tolerable bounds.

Before discussing the current noise abatement efforts of the Agency, I would like to mention some aspects of the problem which are beyond authority to manage. These are the factors which arise and are decided at the local level of our Government. For example, with the exception of two Federal airports serving Washington, D.C., the civil airports serving the Nation are neither owned nor operated by the Federal Government. They are owned and operated by local authorities, at locations selected by local authorities. We analyze proposed locations, runway alinements, additional construction and alterations from an airspace utilization viewpoint.

Similarly, except for the two Washington airports, the decision to permit or deny jet operations at civil airports has been, and is still, the responsibility of the local airport authorities concerned. This is the case at the Chicago O'Hare International Airport. Once arrived at, this Agency has responsibility over these operations in the interest of safety. No operation is conducted or authorized which does not meet the safety standards described in the Federal Aviation Act of 1958, the civil air regulations, and the specific air carrier operating specifications which are approved by this Agency.

The Federal Aviation Act of 1958 does not specifically authorize this Agency to assume total responsibility for all of the problems associated with aircraft noise. The Federal Avaiation Agency's primary interest and authority are to foster air commerce and insure safety of aircraft operations. In the interest of safety of operations, the Federal Aviation Agency has authority to issue air traffic rules which, among other things, are for the purpose of protecting persons and property on the ground.

Pursuant to its authority to issue air traffic rules, the Agency has promulgated a national rule setting forth traffic patterns, approach and takeoff procedures and provisions requiring that preferential runway procedures developed for specific airports for noise abatement purposes be used by all pilots unless safety considerations are overriding.

At this point, Mr. Chairman, we feel it would be helpful to discuss briefly the concept of the preferential runway system since much misunderstanding exists concerning it. A preferential runway system at a specific airport is developed for the purpose of directing approaching and departing aircraft over uninhabited or thinly populated areas contiguous to the airport's runways. In essence, it is an attempt to keep noise away from people by air traffic procedures. Unfortunately, airport configurations are limited in many places thereby deny-

ing a flexibility of choice in controlling traffic. Such a situation exists at the Chicago O'Hare International Airport. During certain wind and weather conditions, overriding safety requirements dictate runway usage that is not necessarily the most suitable from a noise abatement viewpoint. Moreover, as we have indicated, the operating characteristics of the aircraft themselves further limit how far we can go in prescribing altitudes, climb and glide angles, speeds and specific runways for purposes of noise abatement.

Other procedural methods have been developed in an attempt to minimize the noise imposed on communities adjacent to runways. These procedures, which we developed in cooperation with the aviation industry, stress proper throttle and flap management, climb and approach techniques, maneuvering speeds and other aircraft operating procedures designed specifically for noise abatement purposes. Again, it should be emphasized that while helpful, these procedural refinements cannot be expected to solve the noise problem because of limitations imposed by safety in aircraft operations. Nevertheless, we are continuing to evaluate and refine applicable procedures in the hope of further minimizing the effects of noise.

Some people have expressed the thought that the pilots, who must execute these procedures, have a callous public-be-hanged attitude concerning noise generated by their operations. Nothing could be further from the truth. In our judgment, the pilots have done a magnificent job in this regard. We stress the need for judgment and safety responsibility in the cockpit. If, in the pilot's judgment, a deviation from noise abatement procedures is required for safety, the pilot must follow the course of action dictated by his professional judgment. In fairness, it should be understood by all concerned that the burdensome problems associated with aircraft noise cannot be the sole concern of the pilot. Noise abatement aims and safety in air operations are not always capable of living side by side, and, in our view, safety must be the pilot's paramount concern.

In addition to procedural approaches to the noise problem, the Agency has initiated other programs designed to provide guidance to Federal agencies, airport authorities, local planning and zoning commissions, and others concerned with aircraft noise. The Federal Aviation Agency and NASA have jointly funded a contractual program of some $100,000 to establish a new procedure that would be useful in evaluating loudness and noisiness from a subjective viewpoint. Although we know that the overall sound pressure levels generated by jet aircraft are no greater than those generated by piston-powered aircraft, we recognize that because of basic differences in sound frequencies, subjective reaction of airport neighbors is much greater when jet noise is imposed on them. The completion of this contract should result in a revised noise scale which is one of the several prerequisites to the establishment of a noise standard that will be useful to aircraft and engine manufacturers as well as airport operators.

Our Agency has funded another program in the amount of some $40,000 to obtain actual noise contours of different commercial aircraft. These contours will include takeoff and landing profiles of the aircraft concerned. It will provide information as to noise characteristics of the aircraft concerned under actual operating conditions.

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This information will be useful to planners in identifying specific noise sensitive areas which may be expected as a result of operating particular types of aircraft at a particular airport. It will be compiled in a document to replace the current Noise Abatement Planning Guide which was issued by this Agency in September 1960. The revised document is scheduled for completion by October 1962. We feel this type of guidance will be of assistance to local authorities in carrying out their responsibilities for determining the proper use of land adjacent to airports.

As another step toward development of a noise standard, we are now evaluating a proposed study which would establish a disturbance annoyance curve. This would assist in defining community acceptance to certain noise levels in the vicinity of airports.

Because of the limitations in approaching the noise problem from a procedural aspect, we are also directing our efforts to the reduction of aircraft noise at its source. The Agency's newly constituted Aircraft Development Service is attacking the problem in conjunction with the effort to develop suitable powerplants for a supersonic transport. Some $600,000 has been programed in the supersonic transport engine component research program to reduce engine noise.

Additionally, the Aircraft Development Service of the Federal Aviation Agency is finalizing arrangements with NASA and industry to initiate a program to see what can be done primarily on compressor design or modification on current engines to accomplish significant noise reduction. Admittedly, this is a tough technological problem; however, we recognize that resources must be allocated to determine the feasibility of quieting current engines. Our current jet power plants evolved from those introduced by the military services. Noise was not considered as a primary parameter in the design of these engines. As a result, in civil application, noise had to be approached from an "after the fact" viewpoint. This, in turn, led to the expenditure of large sums of money by civil operators for the development of noise suppressors. These suppressors have done a relatively good job; however, they have not been capable of reducing noise at its source to the extent desired by airport neighbors, particularly during landing approaches.

Ideally, the solution to the aircraft noise problem would be to develop a silent engine. Frankly, the very nature of the engine demands that it create noise; consequently, we believe that all of the efforts being expended on this approach are not ging to make jet aircraft quiet. Therefore, the desire of communities in the vicinity of airports for a quiet environment cannot be fully satisfied so long as the airports remain in operation.

Noise also has its psychological aspects. We have found that a lack of understanding and fear on the part of the public tend to magnify the adverse effects of noise. In an effort to increase understanding and dispel fear, we are preparing an authoritative document covering all aspects of aircraft noise. The general purpose of this document is to provide a progress report on what has been done and to explain how the Federal Government has acted in carrying out its responsibilities. The contents will be in layman's language but will emphasize the engineering, aeronautical, industrial, and other technical aspects of the problem in order to better educate the lay reader.

If one assumes, as we do, that jet aircraft are essential to the health and growth of our national economy and that they must be operated at a rather high noise level, then clearly we must look beyond air traffic rules and aeronautical technology for mitigation of the noise problem. We feel that one of the most promising long-range solutions to this vexing problem lies in the strict application of the philosophy of "land use compatibility" in the vicinity of airports. We have traditionally developed airports in fairly remote areas only to see the airport attract urban development as part of the cycle of economic development. Residential development under the approach and departure paths of runways has generated pressures either to move or close the airport. This, we feel, is economically unfeasible and does not serve the public interest. Hence, we are working with other agencies of the Federal Government such as the Federal Housing Administration, the Veterans' Administration, and the Urban Renewal Administration to discourage residential development in these noise sensitive areas. However, the Federal Government acting alone and with its limited powers cannot prevent the encroachment of incompatible land use.

As you know, Mr. Chairman, while we may urge as strongly as possible that past mistakes not be repeated at newly developed airports, in the final analysis the land use decision remains a local one. We recognize, of course, that community effort in zoning does not solve the problem of the communities already located under the approach and takeoff paths at our major airports. From a public interest viewpoint, we believe this problem involves attempting to strike a balance of the equities between the airport owners and users, the adjacent property owners, the air carriers, the traveling public and our overall national requirements for air commerce.

I would not wish to close without noting that the aviation industry is also very actively concerned with meeting its responsibility for noise reduction. The industry has formed an independent organization known as the National Aircraft Noise Abatement Council (NANAC) to coordinate an industrywide program to explore every possible approach which would contribute to the reduction of noise due to aircraft operations. I understand that Mr. Jack Cram, president of NANAC is scheduled to appear before your subcommittee to elaborate on the work of this organization.

In closing, Mr. Chairman, we wish to point out that increased jet operations in noise sensitive areas and the introduction of jet service at more airports will probably offset any significant gains we may be able to make in overall noise abatement. Our expanding economy, our increasing requirements for air commerce and the maintenance of our free world leadership dictate that we maintain a healthy and vigorous air transportation system. On the other hand, social and political pressures for noise abatement work in the direction of limiting the usefulness of aviation facilities to our national growth and economy; and, if carried out fully, would ultimately deny the availability of aviation facilities to our centers of trade and commerce. There is no clear-cut, single solution to this dilemma. This Agency will continue in its efforts to balance the equities to the extent possible in the public interest.

Mr. Chairman, this concludes our prepared statement. I have other representatives of the Federal Aviation Agency here in the room, sir, that are technically qualified in specific areas in case you may want to ask some questions.

Mr. HEMPHILL (presiding). Thank you very much.

Does your written statement represent also the written statement of Mr. Niles, who is on your right, I assume?

Mr. CHARLES WILLIAMS. Mr. Niles, sir, has no written statement per se. However, he does have a presentation to make, briefing the members of the committee on the actual air traffic control problems involved in the Metropolitan Chicago area.

Mr. HEMPHILL. Fine.

Mr. Niles, would you care to proceed at this time?

Mr. NILES. Mr. Chairman and members of the committee, my name is George Niles, and I am an employee of the Federal Aviation Agency and hold the position of chief airport traffic controller of the O'Hare International Airport traffic control tower.

I have served as facility chief at O'Hare since 1946, and have 22 years experience in airport traffic control, having worked at Chicago Midway Airport from 1939 to 1946, when I was transferred to O'Hare as facility chief.

This facility is operated by the Federal Aviation Agency, and our primary purpose and function is to provide for the safe, orderly, and expeditious flow of traffic to, from, and on O'Hare Airport.

The facility operates 24 hours a day, 7 days a week, and is staffed with a competent crew of certificated airport traffic control tower operators.

My facility services O'Hare Airport, now one of the largest in the United States. This airport was built in 1942 by the Douglas Aircraft Co. in connection with their production of the DC–4 aircraft for the military services.

In 1946, the Federal Aviation Agency, then the Civil Aeronautics Administration, began providing air traffic service to this airport, and the city of Chicago assumed jurisdiction of aproximately three-quarters of the airport from the War Assets Administration; at that time, 16 miles northwest of downtown Chicago, virtually in the country, having nearby only three villages approximately 2½ miles from the airport, Des Plaines, Schiller Park, and Bensonville.

On the north there are over 2 miles of farm land; on the west unlimited farm land; on the south extensive railroad yards and industry; and on the east a forest preserve belt. The forest preserve is still as it was. However, over the years the adjacent farmlands have steadily given way to residential development.

O'Hare Airport has also undergone extensive development, and major construction projects are still underway.

This chart shows the presently available runway configuration.

This portion of it here, the city of Chicago obtained from the War Assets Administration. This portion of it is what they got in 1946.

Mr. COLLIER. May I interrupt at this point for one question?

Have any of these runways which you have secured through War Assets been extended from the original form or area that you received them in?

Mr. NILES. Yes. Runway 9–27 has been extended, on the west end.

Mr. COLLIER. And that has been extended much closer to the village of Schiller Park?

Mr. NILES. No. Schiller Park—to give you an idea of the relation of these villages around O'Hare Field—Des Plaines is to the north. Schiller Park is right here, southeast, and Franklin Park lies adjacent to it. This area in green is the forest preserve area.

Mr. COLLIER. Not to belabor this, but do I understand, then, that runway 9 has not been extended?

Mr. NILES. It has been extended to the west. Runway 27 was extended to the west.

Mr. COLLIER. And the extension has brought it no closer to Schiller Park?

Mr. NILES. No. No, it has not. Schiller Park is southeast. Even extending runway 9 would not bring it closer to Schiller Park. Schiller Park is down here southeast of the airport.

Mr. YOUNGER. Might I see that sheet there?

Mr. NILES. Schiller Park is up in this area here [indicating].

Mr. COLLIER. Then it is 32 that points toward Schiller Park?

Mr. NILES. Points toward Schiller Park.

That is 14 to the southeast. The two 14's project southeast. But the same runways, 32, project northwest.

Mr. DEVINE. What is the length of 14 right?

Mr. NILES. 11,600.

Mr. DEVINE. How about to the left?

Mr. NILES. 7,345.

Mr. DEVINE. That will not handle big jets then?

Mr. NILES. They normally use the long runway for west coast and international flights.

Mr. DEVINE. Your 707's and DC–8's—would they not exclusively use this long runway here?

Mr. NILES. Not necessarily. Not if they are eastbound, going to New York or the east coast.

Mr. DEVINE. What percentage of your heavy traffic uses 14 right?

Mr. NILES. I would say about 60 percent of the traffic uses this runway, because of ease of access of the runway from the terminal point.

Mr. DEVINE. Not based on length of runway, then?

Mr. NILES. No. This is not necessarily so in that respect.

Mr. HEMPHILL. Proceed, sir.

Mr. NILES. Due to the optimum length of this runway, and ease of access, most of the aircraft do use this runway. We have a great many aircraft, because they are right up in here. If they are favorable for the southeast direction, we taxi out here, and then down this parallel taxi strip to the takeoff into the runway.

In his respect, also, I would like to point out, contrary to what has been said earlier, about 45 percent of our traffic uses the northwest-southeast runways, and about 35 percent uses the east-west operation. We land southeast most of the time because we do have the ILS and the glide path guidance for both runways, 14 left and 14 right. Going to the back course approaches, we have a back course localizer approach that does not have glidepath guidance. In order to give the pilot the benefit of all the aids that are possible, we use the front course approaches as much as we can.

In order to do this, we land to the southeast whenever it is possible, rather than go to one of these other runways. We have this long runway here, and we make back-course approaches, or approaches to the west, taxiing off to the northwest.

Mr. HEMPHILL. You have an ILS on No. 27?

Mr. NILES. Yes, we do.

Mr. HEMPHILL. You have an ILS on both 14's?

Mr. NILES. That is right.

Mr. HEMPHILL. And that is all the ILS you have?

Mr. NILES. That is true. These are also served by two instrument landing systems. O'Hare Field is the only airport that has three instrument landing systems in use at the present time. They serve the five directions of runways 14–right, 14–left, and 27 for a complete ILS approach, and runway 32–left and 32–right for a back-course approach.

In addition, runways 14–right and 27 have high intensity instrument approach lights with strobe beacon flashers. Runway 32–left is served by a visual glide slope indicator. This is the system of three lights in a bar that tells the pilot that he is high or low on the glide path.

All of these systems are designed and installed to aid the pilot in his approach and descent to the airport, and of course enhance safety.

With respect to runway 27 instrument landing system, I would like to point out that this system was put in last year; primarily to eliminate low altitude circling approaches and minimize the noise problem to the northeast and east side of the airport.

However, I am here today to present the procedures presently in use to control the flow of traffic into and out of one of the busiest airports.

In this respect, the traffic at O'Hare has steadily increased since the advent of the jet aircraft in 1959, and the transfer of operations from Midway Airport to O'Hare Airport.

The following figures will depict this growth. For the calendar year 1957, total operations at O'Hare Field were 209,954, of which 57,692 were scheduled air carriers. In 1958, the total was 236,060, of which 66,205 were scheduled air carriers. In 1959, the total was 234,983, of which 82,417 were scheduled air carriers. In 1960, the total was 244,479, of which 163,351 were scheduled air carriers. In 1961, the total was 318,526, of which 235,908 were scheduled air carriers.

The first 6 months of this year, our traffic total count operations were 198,720, of which 158,031 were scheduled air carriers.

The present peak hour traffic of domestic and international scheduled air carrier operations is 108 movements. The heavy concentration of scheduled air carrier operations at O'Hare Airport is, however, confined to the hours of 7 o'clock in the morning until 10 o'clock at night. There are only 142 operations from 10 p.m., to 7 a.m., out of 1,108 scheduled operations for the 24-hour period; and this does not include the helicopters.

The traffic volume by hours is shown on this chart.

This, as you can see, is the chart by hours, where it starts building up around 6 o'clock in the morning, and goes until 8 o'clock at night, where it starts dropping off again.

Mr. HEMPHILL. You still average about 45 an hour, then?

Mr. NILES. From 8 o'clock in the morning until 9 o'clock at night, we average around 60 operations per hour.

Mr. HEMPHILL. On a 24-hour period, you average 46 takeoffs and landings, which means a takeoff and landing every 45 seconds.

Mr. NILES. That would be true, with 1,108 fixed wing operations for the 24-hour period.

By the location of Chicago with respect to other major cities, it can be understood that the bulk of traffic flows from east to west, and from Chicago approximately 75 percent of the traffic is east-west traffic, and 25 percent is north-south traffic. This is approaching the Chicago area from other cities.

Breaking these percentages down further, approximately 48 percent is from the east and to the east. Twenty-six percent is from the west and to the west; with 13 percent from the north and to the north, and 13 percent from the south and to the south.

Special noise abatement procedures were instituted early in 1960 to minimize the noise problems to persons on the ground. And these procedures are: Departing turbojets climb to 2,000 feet above the ground as rapidly as practicable. Landing aircraft maintain an altitude of 2,000 feet above the ground as long as practicable, prior to landing, whenever weather is not a factor.

Final approach: When approaching to land on a runway served by a functioning instrument landing system, aircraft shall remain at or above the glide slope between the outer and middle markers. When the runway 27, ILS, is in use, arrivals will be vectored at 3,000 feet m.s.l. or above, until intercepting the glidepath.

Mr. HEMPHILL. How far is the glidepath from the end of runway 27, at which time you cease to observe the 3,000-foot minimum?

Mr. NILES. That is at the Taft High School, at the outer marker.

Mr. HEMPHILL. That is 5 miles?

Mr. NILES. Here is the outer marker, but the glidepath intersection is 1,650 feet at that point. The glidepath intersection at the lake shore is 4,400 feet.

Mr. HEMPHILL. Can you go to 4,500 without breaking it off?

Mr. NILES. 1,600 feet is the glidepath interception here, letting down into the field. But we vector at 3,000 feet, and they maintain 3,000 until they intercept the glidepath, when they start their normal rate of descent into the airport.

Mr. HEMPHILL. Then it is 3,000 before they hit the glidepath?

Mr. NILES. 3,000 feet m.s.l., and this 1,650 is above the ground.

Mr. HEMPHILL. Sorry to interrupt you.

Mr. NILES. Special departure procedures are used when O'Hare weather is at or about 2,000 feet, visibility 3 miles.

Special 11 p.m. to 7 a.m. procedures. These are instructions to the tower personnel. Unless weather or runway closures require, the following runways will not be used for turbojets. Departures: Runway 4 and runway 9. Arrivals, runway 22, runway 27. Departing turbojets and four-engine transports will climb to 3,000 feet.

Now, I would like to explain our procedures in detail as to how we control the aircraft in the O'Hare area.

This control is carried out primarily through the use of radar.

Aircraft approaching Chicago from the east are cleared through here [indicating]. This is Chicagoland Airport, but the name of the omnirange is the Northbrook omnirange.

Mr. HEMPHILL. We have just been notified by the bells that we will probably have a rollcall on a piece of legislation. Can you get back in the morning all right? Did you plan to come back in the morning?

Mr. NILES. Yes; I did.

Mr. HEMPHILL. Well, I hate to interrupt you, but we anticipated this might happen, as we stated earlier.

I would suggest if Mr. Williams could come back in the morning he do that.

Before we recess until the morning: Mr. Downes will be here in the morning? Is it convenient for you to come back, sir?

Mr. DOWNES. Yes, sir.

Mr. HEMPHILL. Mr. Paul C. Leonard?

Mr. LEONARD. Here; and will be back.

Mr. HEMPHILL. Mr. Cram?

Mr. CRAM. Here; and will be back.

Mr. HEMPHILL. Is there anybody else whose name I have not called who wished to be scheduled?

I certainly thank your for your patience, and we will recess until 10 o'clock in the morning.

(Whereupon, at 5:08 p.m., the committee recessed, to reconvene at 10 a.m., Wednesday, July 18, 1962.)

AIRCRAFT NOISE PROBLEMS

WEDNESDAY, JULY 18, 1962

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TRANSPORTATION AND AERONAUTICS
AND SPECIAL SUBCOMMITTEE ON REGULATORY AGENCIES
OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittees met at 10:10 a.m., pursuant to recess, in room 1334, New House Office Building, Hon. John Bell Williams (chairman of the subcommittee) presiding.

Mr. WILLIAMS. The committee will be in order, please.

When the committee recessed yesterday, I understand that Mr. Charles Williams, staff assistant to the Director, Air Traffic Service, Federal Aviation Agency, and Mr. George Niles, facility chief, air traffic control tower, FAA, Chicago O'Hare Airport, were in the process of testifying.

I understand they had not quite completed their testimony and the Chair will recognize you gentlemen now.

STATEMENT OF CHARLES H. WILLIAMS, STAFF ASSISTANT TO THE DIRECTOR, AIR TRAFFIC SERVICE, FAA, AND GEORGE NILES, FACILITY CHIEF, AIR TRAFFIC CONTROL TOWER, FAA, CHICAGO O'HARE AIRPORT—Resumed

Mr. CHARLES WILLIAMS. Thank you, Mr. Chairman. I am Mr. Williams. This is Mr. Niles on my right.

We concluded our prepared statement, and Mr. Niles had gotten to the point where we were ready to explain the procedures we use in controlling traffic in the Chicago metropolitan area.

With your permission, we will continue from where we were at that time.

Mr. WILLIAMS. You may proceed.

Mr. NILES. Yesterday, I was just starting to point out the entrance routes into the Chicago metropolitan area. Within the past 2 months, these two routes had been reversed, Victor 100 and Victor 84.

Victor 84 formerly was an outbound route, and Victor 100 was an inbound route.

We have changed that in the past couple of months in order to allow aircraft going out eastbound to use Victor 100. This way we would be able to allow the aircraft to climb to their cruising altitude much sooner than we could previously.

The feeder fixes that are used in the Chicago area for the O'Hare Airport are the Beacon intersection southeast of O'Hare Field and over the lake shore in the vicinity of the Loop area.

The minimum altitude at that fix is 8,000 feet. This is used by Chicago Air Route Traffic Control Center in clearing aircraft into Chicago.

Mr. ROGERS of Florida. How far is that from the airfield?

Mr. NILES. This is approximately 16 miles southeast and over the lake.

On Chicagoland Airport is the Northbrook omnirange. Minimum altitude at this fix is 6,000 feet. This is 12 miles north of O'Hare Field.

Lakewood intersection is on Victor 100. Aircraft approaching from the west and the northwest are cleared to the Lakewood intersection at a minimum altitude of 6,000 feet.

Lakewood intersection is 21 miles northwest of O'Hare Field. The Acorn intersection is on Victor 429 off Joliet and the 224 radial off O'Hare's VORTAC. The minimum altitude at the Acorn intersection is 8,000 feet, and Acorn is located 19 miles southwest of O'Hare Field.

I would like to point out at this time that these feeder fixes are over sparsely populated areas or over the lake.

Aircraft approaching Chicagoland or the Northbrook omnirange via Victor 84 are cleared in at 6,000 feet, and changed over to O'Hare Approach Control from the Center. This is with the use of radar.

Chicago Air Route Traffic Control has enroute radar. O'Hare Approach Control has airport surveillance radar that covers this area. We have had airport surveillance radar at O'Hare Field since 1957. All of our traffic is radar controlled. Aircraft are vectored from the Chicagoland fix into the localizer course.

As they leave the fix, they start their normal rate of descent so as to intercept the localizer course at 3,200 feet, descending to cross the outer marker at 2,200 feet and then descending to the airport.

Mr. ROGERS of Florida. Mr. Chairman, is it all right for us to interrupt for questions such as the distances from certain points?

I think it would be helpful.

Mr. HARRIS (presiding). If the witness does not object.

Mr. ROGERS of Florida. When you say you get down to 2,500, how far is that from the airport?

Mr. NILES. Six miles.

Mr. ROGERS of Florida. Six miles?

Mr. NILES. Six miles northwest at the outer marker.

Mr. ROGERS of Florida. Bringing them down at 2,500?

Mr. NILES. That is true.

Mr. ROGERS of Florida. Thank you.

Mr. NILES. Aircraft being cleared from the south to the Beacon intersection are held at 8,000 feet until they clear this intersection, and then are descended to 6,000 feet to maintain 6,000 feet until they pass our departure routes.

Then they descend gradually so as to intercept the localizer course at 3,200 feet and complete ILS approach into the airport.

The same procedure is used for aircraft from the fix at Acorn. They approach Acorn at 8,000 feet, descend to 6,000 feet and hold until such time as they are past Victor 172, our westbound departure route. After passing Victor 172, they descend to 2,200 feet to cross the outer marker at 2,200 feet and make their ILS approach on runway 14R into the airport.

The CHAIRMAN. Could you talk just a little bit louder, please, sir? It is a little difficult to hear.

Mr. NILES. Yes, sir.

Aircraft at Lakewood intersection are taken off the fix at 6,000 feet and descend on practically a straight line to intercept the localizer course inbound to the airport. This is the configuration for southeast approaches.

We have another chart showing how the traffic is handled for west approaches from the same feeder fixes.

The CHAIRMAN. From the same what?

Mr. NILES. From the same feeder fixes: Acorn, Beacon, Chicagoland, and Lakewood.

Aircraft coming off Lakewood maintain 6,000 feet and turn here on a south heading, starting their descent at this point to intercept the localizer course at 3,000 feet. They maintain 3,000 feet until they intercept the glidepath 4 miles east of the outer marker, or 10 miles east of the airport.

Mr. ROSTENKOWSKI. Is that Taft High School?

Mr. NILES. No, that is right here, the outer marker on 27, which is a little over 5 miles from the airport. But they intercept the glidepath back out here 9 or 10 miles at 3,000 feet, and then start their normal rate of descent, making an ILS approach into runway 27.

Mr. COLLIER. Mr. Niles, would you indicate there for me from the map that you have in front of you east-west runways 9 and 27?

Mr. NILES. That is this runway right here.

Mr. COLLIER. That is the one we are talking about now?

Mr. NILES. That is correct.

Previously, we were talking about the approaches to runways 14 right.

Mr. COLLIER. Now, as I understand it, recently the city of Chicago, through condemnation proceedings picked up 150 acres from the village of Schiller Park, is that correct?

Mr. NILES. This I do not know. You would have to ask somebody from the city of Chicago.

Mr. COLLIER. I will pursue that further.

Mr. NILES. The toll road comes down here east of the airport. I believe the city has all the property west of the toll road.

Mr. COLLIER. Now, would you know offhand whether the condemnation of this property was done for the purpose of extending those runways adjacent, more nearly adjacent to the village of Schiller Park?

Mr. NILES. This I could not say.

However, the east-west runway does not get up close to Schiller Park in that respect. Schiller Park is down here to the southeast of O'Hare Field at the southeast corner. This area here west of the forest preserve and the southeast corner of O'Hare Field is Schiller Park.

Mr. COLLIER. This is what presents the question in my mind because if that is true, and I do not doubt it, I would like to ascertain the specific purpose of securing this additional property from the village of Schiller Park.

Mr. NILES. This, I would say you would have to check with the city of Chicago.

Mr. COLLIER. All right, sir.

Mr. NILES. I am in Operations, and this is the part that I am trying to cover here today.

Mr. COLLIER. I understand that, but I thought perhaps you could add something to the question.

Mr. DEVINE. 14–right and 14–left would be in line with Schiller Park?

Mr. NILES. Yes.

Those two runways are lined up toward Schiller Park to the southeast.

Continuing with the approaches to 27, aircraft are radar-vectored from the Acorn intersection across the south area of O'Hare Field's vector area and brought around and descend so as to intercept the localizer course at 3,000 feet. Upon interception of the glide path, they start their normal rate of descent inbound to the field, making an ILS approach. The same goes for Beacon.

Aircraft coming off the Beacon intersection, as soon as they clear the buffer zone at the intersection, then descend to 6,000 feet to intercept the glide slope at the lake shore at 4,400 feet.

When they intercept the glidepath, they start their normal rate of descent into the airport, making an instrument landing approach.

The covers the approaches to runway 27.

Mr. DEVINE. How high is the outer marker there?

Mr. NILES. 1,600 feet.

Mr. DEVINE. 1,600?

Mr. NILES. Yes.

The CHAIRMAN. Are you talking about jets, or are you talking about conventional planes?

Mr. NILES. I am talking about all aircraft.

The CHAIRMAN. All aircraft?

Mr. NILES. There is a 3° glide path. All aircraft intercept the glidepath at the same altitude, or should at the same altitude.

The CHAIRMAN. You mean the jets come in at the same altitude?

Mr. NILES. Yes.

The CHAIRMAN. As well as the conventional airplane?

Mr. NILES. Yes, sir. That is true.

It is a 3° glidepath, and they use the instrument landing system to make their approach to the airport, sir.

The CHAIRMAN. Is that by FAA regulations, or is that something developed by the airlines?

Mr. NILES. No, that is an FAA regulation, and I believe I have a copy of an instrument landing system, and I would like to have you take a look at it.

These vary in their degrees. This, I wanted to point out to you personally.

The CHAIRMAN. I appreciate that, but the reporter is taking down the statement, too. I cannot understand how you would come to a decision to treat jets on the same basis and with the same route that the conventional type have.

Maybe I missed it. I do not know how, but I am not going to go back and rehash a lot of things that have already been gone over, but we will go into that sometime in order for that to be covered.

Mr. CHARLES WILLIAMS. Mr. Chairman, I would be happy to go into it now, if you would like, sir.

The CHAIRMAN. You have not covered it yet?

Mr. CHARLES WILLIAMS. It was not covered.

The CHAIRMAN. We will wait until he gets through.

Mr. CHARLES WILLIAMS. All right, sir.

The CHAIRMAN. We do not want to interrupt his presentation.

Mr. CHARLES WILLIAMS. All right, sir.

Mr. NILES. This is a back-course ILS approach to runway 32.

The aircraft are taken off at Lakewood, maintain 6,000 feet until they pass Victor 172, or any conflicting outbound traffic, and then descend to 3,000 feet to intercept the localizer course at 3,000 feet, and at 6 miles out from the airport they start their normal rate of descent for a straight-in landing.

Taken off of Acorn intersection at 8,000 feet, they descend to 6,000 feet and then to 3,000, turn onto the final approach course at 6 miles out at 059° radial of Naperville omnirange to start their normal rate of descent inbound to the airport.

Aircraft coming off the Beacon intersection descend to 3,000 feet, making a right turn in. This is with radar vectoring.

Aircraft coming off the Northbrook or Chicagoland intersection, here on the chart, are taken to the southeast at 6,000 feet until they have passed our outbound routes and then descend to 3,000 feet and turn in on the final approach.

This, gentlemen, covers, I believe, the inbound handling of aircraft.

Now, I would like to go back and explain the outbound aircraft departure route in use at O'Hare Field. Aircraft departing eastbound, going east from Chicago, are either sent out via the 059° radial of the O'Hare VORTAC until intercepting Victor 100 and then eastbound on Victor 100 over Pullman and out of the area, or they are sent out via Victor 172 until they intercept Victor 228 over South Bend and out of the area. We also have a straight-out route going directly east out of the airport paralleling the ILS course out until they intercept Victor 228—again over South Bend.

We have a radar handoff procedure for aircraft taking off southeast. We hand off to Midway radar. They are taken southeast out of O'Hare Field over the Crib intersection and then eastbound on Victor 6 over South Bend.

Aircraft going to the south are handed off to the Midway radar and taken on a line south over the Pesotum Army Range and headed southeast toward Indianapolis.

Aircraft that are westbound out of O'Hare Field are cleared out via Victor 172, and westbound out of the area.

These aircraft departing O'Hare Field are restricted to 5,000 feet until they have passed the inbound Victor routes, that are maintained at 6,000 feet, after which they are cleared to climb to their cruising altitude.

This normally is an area of 10 miles either east or west of the airport.

Mr. ROGERS of Florida. What is the reason you cannot have them all take off in line with the highway, as was suggested yesterday?

Mr. NILES. One of the reasons is their destination after takeoff. Some of them are going down southeast, and it depends on wind direction, weather, runway closures, and many other factors.

We have a considerable amount of construction going on at O'Hare Field, and we have to utilize runway 9 many times when we would much rather use one of the 14 runways, but, for one reason or another, it is not available.

Mr. ROGERS of Florida. Is runway 9 the one that goes east?

Mr. NILES. That is the one that goes directly east.

Mr. ROGERS of Florida. And would follow the highway?

Mr. NILES. That is true.

Mr. ROGERS of Florida. I was thinking of your two patterns north of Highway 9 there that you pointed out.

Mr. NILES. These two?

Mr. ROGERS of Florida. Yes.

Mr. NILES. This one could be. It is going out Victor 100 over Pullman and up over Detroit.

Mr. ROGERS of Florida. Is there any reason why those could not be sent out on the east runway there? Could they not take off to the east?

Mr. NILES. Safety factors would be one of the things, but with the varying types of aircraft that we have, and the speeds of the aircraft, we would be jeopardizing safety in many cases in handling the traffic.

Mr. COLLIER. Mr. Niles, would you say that O'Hare Airport, with its present 192 daily jet takeoffs, is at capacity, or would you say that we might anticipate an increase in the number of flights in the future with the present facilities?

Mr. NILES. This is a guess on my part, and I do not think that I am qualified to make that guess for the airlines.

It would be up to the airlines to say what they are going to do with their schedule.

Mr. COLLIER. From your observation of the present activity, would you say that the volume could be increased, or is it pretty near its capacity?

Mr. NILES. I would say under certain conditions and hours of the day it could be increased. Our peak hour at the present time is 108 movements, as I mentioned yesterday.

Mr. COLLIER. But it could be increased at those times when there is not the activity that there is at specific hours?

Mr. NILES. That is true.

Mr. HEMPHILL. Will the gentleman yield to me?

Mr. COLLIER. I will be happy to yield.

Mr. HEMPHILL. Let us clear this business of taking off using one runway, going straight ahead. You tried that approach, and, in the first place, you would not handle the same amount of traffic that you are handling now, could you?

Mr. NILES. No; we could not.

Mr. HEMPHILL. So you would have to either cut back or eliminate some of the traffic?

Mr. NILES Yes.

Mr. HEMPHILL. In the second place, it is going to take off planes and have them climb to an altitude on the same vector; you have got to allow time for them to get there so you can put somebody else off?

Mr. NILES. That is true.

Mr. HEMPHILL. So that is a safety factor.

So this business of sending them all off on one runway is about as impractical under the circumstances as any proposition you can imagine?

Mr. NILES. Yes; it is.

Mr. HEMPHILL. Is that not right?

Mr. NILES. It is.

We tried it.

Mr. HEMPHILL. I am saying it so you will not have to say it. I listened yesterday to all this talk about it, and it occurred to me that the people just did not know what was involved, because if you have got a ceiling of 2,000 feet out there, you have got to get somebody to 12,000 feet so you can put somebody else at 10,000 and somebody else at 8,000 and somebody else at 6,000 and somebody else at 4,000, which is what you have got to do, unless you have got some way to turn them, send them to another marker or vector, is that not the true situation?

Mr. NILES. That is true, sir.

Mr. HEMPHILL. I wanted to clear that up now and get that out of the way before we had some more questions about it, because it occurred to me we are wasting a lot of time on this proposition, which is not practical.

Thank you.

I yield back.

Mr. ROGERS of Florida. What runways do you use in sending them off in your two directions to the north and to the east?

Mr. NILES. To the north we use runways 32–left and 32–right.

Mr. ROGERS of Florida. I am speaking to the east, now.

Mr. NILES. To the east, runway 9. Now, I would like to point out that runway 4, because of its length, 5,760 feet, is not used unless we have a 20-knot wind or greater. That is runway 4–22 to the northeast and souhtwest.

We must have a 20-knot wind to use that runway.

Mr. ROGERS of Florida. What runway do you use to have the planes take off in the direction of your two lines north of your east runway, those two lines there?

What runway do you use for those planes to take off?

Mr. NILES. They could take off on the east runway or the southeast runways, the two southeast runways, and make their turn out here and intercept this radial and then proceed outbound on that radial, or they could take off eastbound and make their turn and intercept this radial and follow the radial out to the airway that they are going to eventually fly out of the Chicago area.

Mr. ROGERS of Florida. What is normally done?

Mr. NILES. Normally?

When you say "normally," the greater percentage of this time they are taking off to the southeast, making their turn, and picking up these radials and then proceeding outbound.

Mr. ROGERS of Florida. Do you use both of those runways at the same time?

Mr. NILES. Yes.

Mr. ROGERS of Florida. And the planes take off at the same time? Is that normally done, or not?

Mr. NILES. We could use one for landing and one for takeoff, depending on the traffic at the time. You might have an influx of arrivals.

We use both of them during VFR weather conditions for arriving aircraft. Other times we will have arrivals and departures operating at the same time and use one runway for arrivals, the other for departures.

Mr. ROGERS of Florida. The point I was trying to make, as Congressman Hemphill was developing, he implied, and I think I can understand his reasoning, that you use a number of runways to take off.

Mr. NILES. That is true.

Mr. ROGERS of Florida. Do you or do you not?

Mr. NILES. Yes; we do.

Mr. ROGERS of Florida. In that direction?

Mr. NILES. Yes; we do. We can use runway 9.

Mr. ROGERS of Florida. At the same time?

Mr. NILES. Yes.

Mr. ROGERS of Florida. All right.

Mr. NILES. We have a separation factor here on the airport. When one departing aircraft has cleared that intersection, we can clear a departure on runway 9.

Mr. ROGERS of Florida. How do you handle the landing? I thought you said you used one to land and one to take off.

Mr. NILES. On runway 14–right. The landing is on 14–right, one departure on 14–left, one departure on 9. This is the way we use three runways.

Mr. HEMPHILL. Will the gentleman yield to me just a minute.

As a matter of fact, what happens practically is that the fellow finding the bird sitting up front has got what is known as an "omni," so if you tell him to make a left turn, pick up a vector heading of, we will say 45°, so all he has to do is to tune into the station that he is going to vector on, set in his little window 45°, and after he has made his turn out of traffic, then he turns his airplane until the needle centers on the "omni" and he is on the course.

Mr. NILES That is true.

Mr. HEMPHILL. It is that simple, and there is nothing complicated about it. All he does is set his "omni" and he does not have to worry about it because he knows when the needle centers, he is on the course you prescribe, and then he reports back to radar control, and he is on vector heading so-and-so and such-and-such an altitude, and then they clear him from radar control to the next station.

Mr. NILES. It is a radar handoff.

Mr. HEMPHILL. That is right.

Mr. NILES. Both inbound and outbound.

Mr. HEMPHILL. So it is very simple. It is not complicated for the pilot because he knows he has got the instrumentation.

Mr. NILES. That is true.

Mr. ROGERS of Florida. As a matter of fact, then, you can send them off 9, for instance, to the east, which is simply having him turn to take these other courses. But you still probably would be using 9 most of the time to send them eastbound, is that right?

Mr. NILES. No; not necessarily.

Depending on wind, runway——

Mr. ROGERS of Florida. I am assuming the wind——

Mr. NILES. If the runway is available and we have wind conditions that will allow that or permit operations on that runway——

Mr. ROGERS of Florida. I am assuming that is where your wind would be from, if you are going to use 9. You would not be using it if you did not have wind coming from the east for takeoff?

Mr. NILES. Normally, no.

But we could do it on a variable wind. If we had a wind——

Mr. ROGERS of Florida. I am assuming just an east wind. Suppose you have an east wind?

Mr. NILES. If we have an east wind, we are using runway 14–right and 9.

Mr. ROGERS of Florida. And 9?

Mr. NILES. Yes.

Mr. ROGERS of Florida. And then you just have them take off in different directions but you would not have them all follow the same course out because it would slow you down, is that correct?

Mr. NILES. That is true.

Mr. ROGERS of Florida. So they could not all follow that highway?

Mr. NILES. They cannot all follow the highway; no.

Mr. ROGERS of Florida. As was suggested, simply because it would slow down and the safety factor involved?

Mr. NILES. This was explained in meetings previously in the Chicago area, too. In addition, another statement made yesterday indicated that aircraft taking off southeast from O'Hare Field, going to the west coast, or westbound out of Chicago, make left turns. This is not so. They make right turns, with Midway's traffic being practically nil. We have increased our vector area to the south, so that we have sufficient room for these aircraft to make a right turnout coming back to intercept vector 172 and go westbound out of the Chicago area.

The CHAIRMAN. Does that conclude your presentation, Mr. Niles?

Mr. NILES. Yes, sir.

The CHAIRMAN. You may proceed, Mr. Williams. You will probably want Mr. Niles to sit there next to you.

Mr. NILES. Thank you, Mr. Chairman.

Mr. CHARLES WILLIAMS. Prior to answering any further questions members of the committee may have, Mr. Chairman, I believe it would be appropriate to cover a couple of points which were brought up in testimony presented yesterday.

One concerns the runway utilization record that was discussed. The FAA keeps airport traffic activity counts by categories of aircraft.

We have not maintained a record of a specific runway used by a specific aircraft at a specific time, primarily because of the manpower problem involved in such an activity.

However, we are instituting this procedure at the Chicago O'Hare International Airport. We are asking for five manpower spaces in order to accomplish the job of maintaining a runway utilization log by specific type of aircraft. I knew that Mr. Pucinski was particularly interested in this aspect of the problem, and we are going to do it as soon as possible.

Another question, which was raised by Mr. Collier yesterday, concerned the noise abatement officers and the noise abatement functions of the Federal Aviation Agency.

In order to clarify our responsibilities, as we see them, concerning noise abatement officers, I would like to explain that my position, for example, in the Washington headquarters is that of noise abatement officer working directly with Mr. Thomas, who is Director of the Air Traffic Service, who, in turn, reports directly to Mr. Halaby. My primary responsibility is to work with industry, with communities, with everyone concerned with noise abatement problems to see what can be done in balancing the equities involved in this knotty, complex problem.

We also have noise abatement officers in our various regional headquarters and, in turn, have delegated this function down to our area air traffic supervisors who are located at major airports.

We do not, however, engage in activities similar to those Mr. Collier mentioned yesterday relating to controlling the air traffic flow, making decisions as to when aircraft would take off or when the activity would stop or when another runway would be used.

Mr. COLLIER. Mr. Chairman, may I pursue that question?

Mr. CHARLES WILLIAMS. Yes, sir?

Mr. COLLIER. Do I understand, then, that the decision, for example, to permit or deny jet operations at the civil airport is entirely the responsibility of the local airport authority?

Mr. CHARLES WILLIAMS. Yes, sir.

Let us clarify that, Mr. Collier. I am glad you brought that up.

For example, we have had problems, as you may recall, at the Newark Airport. Jet aircraft were not authorized to go into Newark until a decision was made by the Port of New York Authority to allow them to come in. Prior to that time, jets used Newark as an alternate airport only. The Port of New York Authority did not allow jet aircraft to operate into Newark for quite some time. As you undoubtedly know, the port authority restricts pure jet operations at La Guardia today.

Once a decision is made by the local airport authority to allow jet aircraft to operate at a specific airport, our function is to insure that this operation is conducted in the safest manner possible in accordance with the civil air regulations and the air carrier operating instructions pertaining to the particular types of aircraft employed.

Mr. COLLIER. In the final analysis, however, is it not the FAA that makes the determination as to whether a certain type of aircraft can or cannot land at a given airport?

Mr. CHARLES WILLIAMS. Yes, sir.

In our function of certifying aircraft, we will not certificate an aircraft until it has been demonstrated that it can, in fact, operate safely under the conditions prevailing at specific airports taking runway distances into account, among other things.

Mr. COLLIER. Any decision that the local airport authority might make is entirely subject to the final judgment or final approval of the FAA?

Mr. CHARLES WILLIAMS. Yes, sir; with respect to safety. For example, after the Boeing 707 was certificated and came into service, and when an airport authority decided it wanted 707's to come in and operate on a 10,000-foot runway, we knew from the tests we had run on the aircraft that, subject to certain temperature, gross weight considerations and things of this nature, this could be done safely.

Mr. COLLIER. What if you operated an operating certificate for a particular operation and the local airport authority, in its judgment, does not feel that this is proper. Where, then does the final decision lie?

Mr. CHARLES WILLIAMS. Sir, if this happened, if the local airport authority came in with an idea that the operation was unsafe, and this, I think, would be the crux of the matter; then the final decision would rest with the FAA to determine whether or not, in fact, it was safe under certain conditions applicable to that specific airport.

Mr. COLLIER. So that at the present time really the Chicago Airport Authority does not make a determination as to what or how many aircraft or types of aircraft can utilize either O'Hare or, in fact, Midway, as the case might be?

Mr. CHARLES WILLIAMS. Sir, possibly Mr. Downes can shed further light on this during his testimony—but, the certificate that is given by the CAB to a carrier to serve Chicago does not require the carrier to operate at a specific airport in Chicago so long as the service is performed for public convenience and necessity to meet air transport requirements in Chicago.

Mr. COLLIER. Putting the shoe on the other foot, neither could the Chicago Airport Authority deny them the use of Midway for a particular type of flight, even if they wanted to?

Mr. CHARLES WILLIAMS. Let us see, sir, what has happened around Midway.

For example, if United Air Lines wanted to operate a Caravelle, which is a pure jet, into Midway, and they were willing to take the operating penalty in order to make that airplane fit the configuration of the runway available, then I think that the decision as to whether or not they will operate it there would be a matter between United and Mr. Downes.

As long as United has a certificate issued by CAB to serve Chicago, I believe the certificate will not specify which airport must be used so long as service is provided to Chicago.

Mr. HEMPHILL. Will the gentleman yield to me right there?

You are saying that the city of Chicago, which owns this airport—does it not own the airport?

Mr. CHARLES WILLIAMS. Yes, sir.

Mr. HEMPHILL. Are you saying that the city of Chicago, which owns this airport, has the right to say to United, or whomever else you have certificated, you can land or not land at our airport?

Now, Chicago has that right, do they not?

Mr. CHARLES WILLIAMS. Yes, sir.

Mr. HEMPHILL. All right.

I am just trying to find out where the authority lies. And you have no authority, as I understand it, to say to the city of Chicago: "You just accept landings from aircraft type A, which we have certificated with the Blank Co., to give you service?"

Mr. CHARLES WILLIAMS. No, sir.

Mr. HEMPHILL. You do not have that right?

Mr. CHARLES WILLIAMS. No, sir.

Mr. HEMPHILL. So the city of Chicago, if it wanted to pass the buck to Congress, could say: "All right, you clean up this noise abatement, but it is better to send it down here to Congress," right?

Mr. CHARLES WILLIAMS. Yes, sir.

Mr. HEMPHILL. I think that is the situation, certainly.

Mr. ROSTENKOWSKI. Are you saying that after you have certificated an aircraft with United Air Lines, that they cannot land at O'Hare Airport?

Mr. CHARLES WILLIAMS. No, sir, Mr. Rostenkowski.

Mr. ROSTENKOWSKI. I am not talking about Midway, and I do not think Mr. Hemphill is talking about Midway.

Mr. CHARLES WILLIAMS. No, sir.

Mr. ROSTENKOWSKI. I am talking about O'Hare.

Mr. CHARLES WILLIAMS. Sir, I am saying this:

Our certification authority is based on whether or not an airplane can perform safely at an airport runway configuration, temperature, field elevation, and the like. If O'Hare meets our requirements for the operation of that type of aircraft, as far as we are concerned it is perfectly all right for that airplane to operate at O'Hare.

We do not have the authority to force the city of Chicago to make that airplane operate at O'Hare. That is what I am saying.

Mr. ROSTENKOWSKI. Does the Chicago authority, does the Chicago Aviation Commission have the authority to deny them the privilege of landing at O'Hare?

Mr. CHARLES WILLIAMS. We believe they do.

Mr. ROSTENKOWSKI. After they are certificated?

Mr. CHARLES WILLIAMS. We believe they do.

Mr. ROSTENKOWSKI. You do not know they do. You believe they do?

Mr. CHARLES WILLIAMS. We have gone on record in the case of Newark.

Mr. HEMPHILL. As I understand it, the way these things are operated, every carrier makes a contract with the authority owning the airport for the use of that airport?

Mr. CHARLES WILLIAMS. Yes, sir.

Mr. HEMPHILL. Not only to land and take off, but for the parking space.

I know Eastern out here at national has got the best spaces.

Mr. CHARLES WILLIAMS. As of today.

Mr. HEMPHILL. So actually your operations are confined to this:

Your operations are confined to the authority given the Administrator under sections 102, 103, and 307 specifically of the act of 1958 which sets forth that the FAA Administrator shall have the authority over rules and regulations of flight, landgings and takeoffs and safety, and it does not mention specifically—it says civil and military operations, I believe, is the way the law reads.

Mr. CHARLES WILLIAMS. Yes, sir.

Mr. HEMPHILL. Now, once you have performed that function, FAA has nothing to do with the contractual specifications between the airline and the authority.

The New York Port Authority and the Chicago Authority have some sort of authority.

So, therefore, the FAA has no right to say, after it has certificated the aircraft, it has no right to say, "You can land at O'Hare," or, "You can't".

You cannot say that.

As long as you obey safety regulations and other FAA regulations——

Mr. CHARLES WILLIAMS. Yes, sir.

Mr. HEMPHILL (continuing). You have no authority to say he can or cannot take off.

You have no authority to say he can or cannot land, do you?

Mr. CHARLES WILLIAMS. That is correct sir.

Mr. HEMPHILL. So what is happening on this noise abatement, it came to me some time ago, is that the cities want the traffic and the people want the service. And then when it gets noisy, they want to hand it down to the Congress of the United States because it is easier to go to the Congress than somebody closer.

Is that about the size of it?

Mr. CHARLES WILLIAMS. Sir, you have stated the situation very well.

Mr. HEMPHILL. I am just trying to put the egg in the pan. Let us fry it right now.

Mr. CHARLES WILLIAMS. Thank you.

Mr. COLLIER. That has been clarified, but it opens the door, I believe, to what might well be the crux of these entire hearings, and that is the mandate of responsibility with regard to the interest of residents of areas adjacent to airports.

Under these circumstances, then, in view of the preceding colloquy, would you say that there is merit to establishing an agency, as much as I personally do not like establishing new agencies. But one may be necessary to deal specifically with this problem, in view of the very ambitious 5-year, long-range airport construction program that has already been announced.

Mr. CHARLES WILLIAMS. Mr. Collier, the agency's view on the matter of forming a separate agency of the Federal Government—I assume this would be an arm of the Federal Government—to solve a problem that is so complex and that encompasses the economics of aviation; the relationship of air carriers to airport operators, and the entire spectrum of aviation, is that you would be giving it a virtually impossible task, or you would have to set it up with such broad authority that it would wield the power of a czar.

The problem of noise, we believe, goes from the very grassroots clear on through the entire spectrum of aviation.

In forming an agency to be responsible for this, I believe consideration should be given to whether or not it would have a chance to succeed in the mission assigned to it.

I do not believe that the problem is this simple.

Mr. COLLIER. I feel—and I think it is entirely proper—that the prime function of the FAA today is to promote in every practical way air travel, and particularly, of course, to see that safety standards, both of the flying public as well as the general public, are preserved.

But I do not see how, in view of the problems that exist here and elsewhere, again being repetitious, in view of the long-range program anticipating new developments in air equipment, that we can simply say, "Well, there is nothing we can do about this," because we will be back here 15 years from now with this problem compounded, I am afraid, unless we look ahead today to the problem that millions of citizens in this country are going to face in the coming years, akin to this very problem we are discussing today in the area of O'Hare, as well as in many other large and expanding airports.

The CHAIRMAN. Gentlemen, I want to suggest that we try to move along this morning and let these people from Chicago have some time.

Mr. CHARLES WILLIAMS. Yes, sir.

The CHAIRMAN. Instead of members of the committee and Mr. Williams of the FAA.

We are utilizing all of the discussion to find out who is supposed to do what.

We will talk about that some other time.

Mr. Williams, FAA does have a responsibility under the law. O'Hare is a Federal-aid airport project. They enter into certain agreements about the utilization of that airport which you are authorized to carry out.

The city of Chicago has a responsibility and the Congress has a responsibility, so let us not start throwing off responsibility here this morning.

We have got these other gentlemen here to tell something about what is going on out there. If you have got something else that you want to give to the committee, I wish you would proceed to do it, but we have got several witnesses from Chicago here, and I think they are entitled to be heard.

Mr. CHARLES WILLIAMS. Mr. Chairman, thank you very much.

This concludes our part of the presentation, sir.

The CHAIRMAN. Any further questions of Mr. Williams at this time?

I think there will be a good deal more said about responsibility as we go along in this matter, but I do not believe it is quite so simple as you made it a moment ago as to whose responsibility it is.

And also at the proper time I want to get some explanation of how you treat jets.

Mr. CHARLES WILLIAMS. Yes, sir.

The CHAIRMAN. On their approach to an airport on the same basis——

Mr. CHARLES WILLIAMS. Would you care to discuss it very briefly at this time, Mr. Chairman, or at some other time?

The CHAIRMAN. I hope it will be brief because we have been talking now for nearly an hour here just back and forth in a general way.

Mr. CHARLES WILLIAMS. Yes, sir.

The CHAIRMAN. I think these people who are here are entitled to be heard, or we are going to run out of time.

Mr. CHARLES WILLIAMS. Would you care to discuss that? I will be very brief on it.

The CHAIRMAN. All right.

Mr. CHARLES WILLIAMS. The ILS diagram that we furnished you there, sir, outlines our standard. The setting of a glide slope is based on the operating characteristics of these aircraft descending and making a safe landing on the runway.

We are trying to standardize on a setting of 2½° to 2¾°. However, our criteria on this setting are often based on obstruction heights as well as the glide slope characteristics of the aircraft.

If I understand your point, Mr. Chairman, we find it impractical to use a much higher glide slope setting for jet aircraft because of excessive sink rates and the problem that you have in flaring the aircraft out and landing it safely.

This is why we find that a standardized glide slope setting is the most practical way to get all of the aircraft down safely and expeditiously.

The CHAIRMAN. Are you trying to tell us that the jet requires the same glidepath in, as does, say a DC–7–B?

Mr. CHARLES WILLIAMS. Yes, sir.

We use the same, either a DC–7 or a 707.

The CHAIRMAN. I know you use the same, but are you trying to tell me that it is advisable to use the same?

Mr. CHARLES WILLIAMS. Yes, sir, we have found it so.

The CHAIRMAN. I would like to go into that some other time.

Mr. CHARLES WILLIAMS. All right, sir.

The CHAIRMAN. There is nothing comparable about the type engine and the noise that comes from each of them, is there?

Mr. CHARLES WILLIAMS. Not particularly on the engine, sir.

However, there is a good deal of comparability between sink rates and air speeds used on final approach.

The CHAIRMAN. Thank you very much.

Mr. ROSTENKOWSKI. Mr. Chairman, I would like to ask one question.

The CHAIRMAN. All right.

Mr. ROSTENKOWSKI. Mr. Williams, does the airport owner or the FAA establish the flight patterns and control traffic into an airport?

Mr. NILES. The FAA.

Mr. ROSTENKOWSKI. The FAA?

Mr. NILES. Yes.

Mr. ROSTENKOWSKI. That is all, Mr. Chairman.

The CHAIRMAN. Is Midway closed to commercial aircraft?

Mr. NILES. It is not closed to commercial aircraft; no.

There are no scheduled operations into Midway at the present time. It is still available for use, but at the present time they are not——

The CHAIRMAN. It is not closed, but it is just not used?

Mr. CHARLES WILLIAMS. Not used, that is right.

The CHAIRMAN. That is one way of putting it.

Mr. CHARLES WILLIAMS. Thank you very much, Mr. Chairman.

The CHAIRMAN. Thank you very much.

Mr. William E. Downes, Jr., commissioner of aviation, city of Chicago.

Mr. ROSTENKOWSKI. Accompanying Mr. Downes is Mr. James E. Strunck, assistant corporation counsel of the city of Chicago.

Mr. DOWNES. I also have Mr. Herbert H. Howell, the chief of our engineering and planning division.

The CHAIRMAN. Will you proceed?

STATEMENT OF WILLIAM E. DOWNES, JR., COMMISSIONER OF AVIATION, CITY OF CHICAGO; ACCOMPANIED BY JAMES E. STRUNCK, ASSISTANT CORPORATION COUNSEL, LAW DEPARTMENT, AND HERBERT H. HOWELL, CHIEF OF AVIATION PLANNING, DEPARTMENT OF AVIATION

Mr. DOWNES. Mr. Chairman, I am William E. Downes, Jr., commissioner of aviation for the city of Chicago, Ill. I am here today to speak for the Department of Aviation of the city of Chicago, and to represent the mayor of Chicago, the Honorable Richard J. Daley.

His absence today is due to longstanding commitments. Mayor Daley's absence, however, in no way indicates a lack of interest in Chicago's airports, the problems associated with them, or in this hearing.

The growth of Chicago into the Nation's second largest metropolitan area has been due, in no small part, to the excellence of its transportation facilities. At the very outset of commercial air transportation, Chicago was one of the first communities in the United States to own and operate a municipal airport. What is now Chicago Midway Airport started in 1927 as a small field one-half mile square. In 1935 it was expanded to the then unprecedented size of 1 mile square. Midway Airport serves as a good example to show how an airport acts as a magnet to attract people to move into its environs. Although the airport was situated in what was originally fairly open country, the surrounding areas were built up to the degree that there is now no open property within a considerable distance of the airport. Midway Airport quickly became the crossroads of air traffic, and for years was the world's busiest airport.

Merrill C. Meigs Field was opened shortly after the conclusion of World War II. It is a single-runway airport located on the lakefront, in close proximity to Chicago's Loop. Its prime purpose is to furnish the quickest possible access to downtown Chicago for the businessman who flies to Chicago in his own plane or in a company aircraft. We believe that this is the Nation's busiest single-runway airport. Almost any day will find corporate aircraft parked at Meigs Field that represent a cross section of business firms all across the country.

Long ago, Chicago found that Midway Airport was not capable of handling all of Chicago's forecast traffic. It set about to locate the site for a second major airport. The site finally selected, which was developed into today's Chicago O'Hare International Airport, was in the northwest part of the Chicago area.

The basic portion of the original site was the landing area of the wartime Douglas Aircraft plant. This land was obtained from the U.S. Government as surplus property in 1946. It consisted of 1,080 acres. Since 1946, the city of Chicago has undertaken three major land-acquisition programs as the airport's master plan has been revised to accommodate a changing aviation industry.

Initially, the 1,080 acres of land acquired from the Government were supplemented with land purchases by the city of Chicago to make a site of about 6,200 acres. The master plan called for a high-capacity tangential runway layout, taking advantage of the best thinking and forecasting available at that time.

In 1952, the master plan was revised to provide for longer runways and to change from a tangential runway plan, with runways radiating from a central terminal core, to an open parallel plan with terminal facilities still in the center of the airport. Additional land was acquired.

More recently, the master plan has again been revised to provide for an expanded terminal area and runways of jetage length. The latest land acquisition program to accommodate this current master plan raises the total airport area to approximately 7,200 acres. The land initially acquired by the city of Chicago in 1947 averaged about $400 to $500 an acre. The latest land acquisition reflects costs as high as $20,000 per acre for farmland. Real estate negotiators for the city of

Chicago advise that any further land acquisition will probably cost in the range of $50,000 an acre, which current sales indicate is the market value of unimproved land within 5 miles of the airport. The current master plan provides for three sets of parallel runways. Planned lengths of the runways are sufficient for all foreseeable aircraft, with margin for further expansion. Our present dominant runway, for example, is now 11,600 feet in length, but it can be extended to 14,000 feet in length if the need ever arises.

And I might add here that should this occur, we still have land available at the end of the runway to provide the FAA criteria covering clear zones and still have it be within our own property.

In all of our planning and in acquiring land for O'Hare Field, we have attempted to do everything feasible to make the airport the best possible neighbor to its community. We are proud of the fact that O'Hare served, in part, as the model for the Doolittle Commission recommendation that half-mile clear zones be incorporated into airport boundaries. We have had these clear zones at O'Hare Field since we started planning for a major airport facility at this location. As we extended runways to keep pace with the industry, we have not encroached into the clear zones without buying additional property to maintain the half-mile minimum distance between the ends of runways and the airport boundary. Consequently, the airport is probably better protected than any other airport in the United States, with the possible exception of the new Dulles Airport, developed in an area of open farmland in Virginia. The layout of the O'Hare runways is such that the core of the airport operations is in the heart of the airport. No aircraft loading, parking, or repair facility is placed less than one-half mile from the airport boundary. No airplane warms up closer than 2,000 feet to the airport boundary. The runways are planned at lengths sufficient to permit aircraft to be at reasonable altitudes over the boundary of the field.

O'Hare Field is the busiest airport in the world. It has, we believe, more scheduled jet aircraft operation than any other airport. It serves as the base of employment for about 17,000 persons. This is expected to reach a total of 25,000 within the next year, which means that about 100,000 people will depend on O'Hare Field as their source of livelihood. We are still in the process of developing the last phases of new terminal facilities at a cost of nearly $150 million. We have extensive landing area improvements planned. We expect to accomplish some of them during this construction season and to have others ready for construction in the spring of 1963. All of the improvements have a common goal: to develop an airport that is safe and adequate, and one that is the best possible neighbor to its surrounding community.

In addition to the acquisition of an adequate site, and the careful planning and replacement of airport facilities, O'Hare Field also has benefited from a coordinated public works program. On two sides of the site, broad rights-of-way for toll roads and expressways act as buffer zones immediately adjacent to the airport's boundaries. Railroads bound the airport on two other sides. We have successfully encouraged industrial development in the areas contiguous to the airport. Actual zoning for land use is not yet a reality, being compli-

cated by the fact that the airport is located in two counties, Cook and Du Page, and by the numerous governmental jurisdictions in the area. Recent action by the Illinois Legislature, however, makes zoning by the State of Illinois possible and the Chicago Plan Commission is working out the details of a proposed zoning action that may encompass land use.

Chicago has not developed its airport facilities singlehanded. We gratefully acknowledge the financial assistance that we have received from the Federal Government, especially the Federal-aid airport program, and the grants we have received from the State of Illinois. We also acknowledge the long-term leases and use agreements entered into by the domestic airlines, which back up the revenue bonds that provide the funds for our new jet-age terminal facilities.

I might point out at this time that the contractual arrangement we have with the carriers covering this revenue bond issue obligates them to make payments to us that will take care of the debt service charge on the bond issue so that the possibility of the taxpayer being obligated to amortize this investment is nonexistent.

Most of all, however, we acknowledge the constant advice and counsel of the entire aviation industry, including the airlines, the manufacturers, and the Federal Aviation Agency, which provide a firm advisory foundation for our airport planning. At each step we have availed ourselves of every possible outside source of expert advice and information.

Thus, the city of Chicago feels that it has done everything that is prudent, reasonable, and feasible to develop and maintain O'Hare Field so that it will give convenient, safe, and efficient service to vast numbers of passengers—at least 12 million this year—and at the same time minimize inconvenience to areas surrounding the airport. The city is ready and anxious to do anything further, within the realm of feasibility, to undertake airport developments that improve the total situation. The city of Chicago obviously cannot control who flies what, and how, or where. Such control is vested in others than the airport operator. We stand ready to work with others, however, to the end that the airport can better serve its community—and the Nation. Chicago is unique among U.S. cities in that approximately 5 million of the more than 12 million passengers who will arrive and depart from O'Hare Field this year will use Chicago's terminal facilities while transferring from one flight to another. Every day some 15,000 non-Chicago people change planes at O'Hare Field. This aerial crossroads is perhaps the most vital hub in the U.S. air transport system, since so many aircraft use it as an interchange point and so many passengers transfer. When O'Hare Field is closed by bad weather, the Nation's airline system is severely crippled. When air traffic delays are encountered in the Chicago area, the impact is felt from coast to coast as the delays become systemwide. O'Hare Field is truly the Nation's airport.

It has been a privilege to appear before this committee today and again let me express the regrets of Mayor Daley for his inability to be here.

Thank you.

The CHAIRMAN. Mr. Downes, we are glad to have your statement on the development and progress of air transporation in the city of Chicago, which is commendable.

I think at this time, in addition to the fact that Mr. Rostenkowski and Mr. Collier, both from Illinois and Chicago, are interested in the problem that we are trying to give some thought to today—Mr. Pucinski was heard yesterday—today we should also appropriately note the presence of the dean of the Illinois delegation, Mr. O'Brien.

We are glad to have you with us and note your interest in this problem.

We regret that Mayor Daley cannot be with us. We understand, though, why he would choose to have you represent him here.

Mr. DOWNES. Thank you.

The CHAIRMAN. However, I noticed you said very little about noise. I do not get anything in your statement even raising the problem, and I assume the fact that the problem is not even raised, there is no need discussing the solution to it.

Have you got anything you want to say about noise at O'Hare?

Mr. DOWNES. Mr. Chairman, our design of the airport took into account all known criteria to make sure that we could accommodate any airplane that was thought of at the time and indicates that we thought about this noise problem.

We designed the airport with the facilities not situated on the perimeter of the airport where noise might be generated in hangar areas or adjacent to the ends of runways that might bother people.

It is all out in the center of the airport so that no noise is generated on the airport that can bother any of its neighbors.

I do not think there has ever been a complaint from this source. We do not control the airplane in the air, sir. We cannot do anything at all about the airplanes coming in at any altitude or on a prescribed course.

This is not our prerogative, nor our responsibility, and I would not dare try to tell the Federal Government how to run this end of the business.

The CHAIRMAN. Do you recognize there is a problem?

Mr. DOWNES. Why, certainly, we recognize the problem, Mr. Chairman, by the fact that we designed the airport itself the way we did: to eliminate the possibility of noise on the airport bothering anybody.

The CHAIRMAN. You have obtained a rather extensive area, which is farsighted, in my judgment.

At the time the property was obtained for this purpose, was it built up around this area, residential, commercial, and otherwise?

Mr. DOWNES. No.

The increment in land values and occupancy has been considerable since the location or since the advent of O'Hare Field, sir.

The CHAIRMAN. In other words, most of the development in and around that field has occurred since the field was actually established there?

Mr. DOWNES. Well, a considerable portion of it, Mr. Chairman.

I do not know whether I would say that most of it occurred or not. As the gentleman from Park Ridge pointed out yesterday, while they are a distance away from the airport, that particular community was there 50 years ago.

The CHAIRMAN. Yes.

Mr. DOWNES. But many others have sprung up since.

The CHAIRMAN. But the modern development and expansion and so forth has been observed because the airport was established?

Mr. DOWNES. Yes, sir.

The CHAIRMAN. That seems to me, Mr. Downes, to be one of the problems. The municipalities, the leadership in various communities throughout the Nation, should give a lot of thought to that.

I know that the Federal Government has a responsibility in this field. The airlines or those who operate the airplanes have a responsibility.

In my judgment, the Congress has a responsibility.

But I believe in the development, residential and otherwise, around these airports.

Mr. Collier mentioned something about the expansion program in the next 15 years. I believe that the municipalities have the responsibility for zoning programs that would be practical.

A few days ago I had a conference with a group of people representative of the United States Conference of Mayors. They were interested in the Federal Government's helping them to assume the financial burden that they are fearful they are going to have in view of the Supreme Court decision in the Pennsylvania case.

On the other hand, Dulles International Airport out here is developing right now and the local authorities are permitting the same thing. I issued a word of caution about a month ago.

Now, it is not my responsibility or prerogative to tell the people out in Virginia how to run their business; I know that; but the House has given us a job to do, and that is something with reference to the problem of noise.

And here we run right into the face of it here in the Nation's Capital where the local authorities and the people there are so interested in commercializing, developing real estate and trade that they pay no attention to the future, or this transportation for the people who are going to live there.

It just does not make sense to me.

I think the municipalities of this country and the people who have the responsibility and authority around such developments very well better take into consideration this matter, because I do not believe the courts are going to give them what some of them think they are going to give them: that is, damages, when they walk into it on their own, with their eyes open.

That is, I hope their eyes are open. They ought to be, but evidently they are closed.

So I hope you will take this back to the authorities in the city of Chicago in the future in consideration of these things, because I do not think you can expect the Congress to do something that is utterly impossible.

As Mr. Williams mentioned a moment ago, some agencies, if set up to do something, it would be an impossible task. Certainly it is going to be an impossible task if you have got four different units all pulling in separate ways. Does anybody else have any comment or any questions?

Mr. Younger?

Mr. YOUNGER. Mr. Downes, on the last page of your statement, you say:

> We stand ready to work with others, however, to the end that the airport can better serve its community—and the Nation.

You heard Mayor Overbeck yesterday, state that they had tried to get the cooperation of the management of the airport to sit down with them and without success. What is the answer to that?

Mr. DOWNES. I know of no request that has been made to my office to sit down with them on this subject, sir.

Mr. YOUNGER. That is all I have.

The CHAIRMAN. Mr. Hemphill?

Mr. HEMPHILL. You made a statement here:

> The airport is better protected than any other airport of the United States with the exception of Dulles Airport.

When you made that statement before, did anybody ever contest the truth of that statement?

Mr. DOWNES. To the best of my knowledge, I think we have more land available at the end of our runways than others. To the best of my knowledge, this is so.

Mr. HEMPHILL. I wish to congratulate you for a magnificently planned airport, as far as I can see.

Now, I do not want to dwell on this at any length, but is there any doubt in your mind, as the commissioner of aviation of the city of Chicago, as to what authority Chicago has and what authority Chicago does not have in the field of noise abatement?

Mr. DOWNES. In the field of noise abatement?

Mr. HEMPHILL. Yes, sir.

Mr. DOWNES. Well, I think that this has to be directly associated with the operation of the airplanes, because the airplanes cause the noise.

Therefore, if the noise is going to be abated, it has to be connected with the operation of the airplane.

We have no control, sir, over the operation of the airplane in the air, as you well know. We cannot tell any pilot or any carrier——

Mr. HEMPHILL. I think that is elemental.

Mr. DOWNES. Yes.

Mr. HEMPHILL. I think that is elemental.

Mr. DOWNES. So as far as our controlling the noise on the ground, yes, we can do something about it.

For instance, at Midway Airport years ago, when some carriers were inclined to want to run up their engines at 2 o'clock in the morning, we stopped them from doing it. We put a prohibition on permitting that from—I have forgotten what the hours are now—I think from 10 until 6, or something like this. This we can control. This is on the ground. This is our property. We can do something about that.

Mr. HEMPHILL. Suppose some airline, the New York airline, we will call it, wanted to come into Chicago. Would they have to contract with the city of Chicago for facilities?

Mr. DOWNES. They would contract with us for space occupancy, for ticket counters, offices, possible hangar areas, and so forth, yes.

Mr. HEMPHILL. Actually, any certificated aircraft has a right to land and has a right to takeoff, provided the tower facilities or the FAA facilities give him the permission?

Mr. DOWNES. Yes.

Mr. HEMPHILL. He has a right to take off, but he has no other rights because other rights are controlled by the city of Chicago?

Mr. DOWNES. Yes.

Mr. HEMPHILL. And if the city of Chicago specified in its contract that there would be no landings—I mean no space for the operation of jet aircraft, could it contract this: That you would not lease any space in connection with the operation of jet aircraft?

Mr. DOWNES. I do not think so.

Mr. HEMPHILL. You do not think so?

Mr. DOWNES. I do not think so.

Mr. HEMPHILL. Do you think that section 401 or 103 of the Federal Aviation Act gives that authority to the FAA Administrator?

Mr. DOWNES. On our sponsor agreements, when we accept money from the Federal Government on the Federal-aid-to-airport plan, we agree to be nondiscriminatory. We agree to permit the use of the airport and the facilities on a nondiscriminatory basis.

And the only justification we have that we know of would be were they to do something which were proven to be unsafe, and we assume that the Federal Government would not authorize the use of the aircraft in the first place, if it were unsafe.

Mr. HEMPHILL. And you feel that it is not a matter for the city of Chicago, but it is a matter of congressional policy?

Mr. DOWNES. Possibly both ways, sir; within the limit of our responsibility, we certainly would—with authority, we certainly would—do what we could do. But I do not think we have other rights that might have been indicated.

Mr. HEMPHILL. I assume there is some feeling that noise which is incidental to jet operation is just one of the penalties of progress. Thank you.

Mr. DOWNES. Congressman, not as an abstract statement. I do not mean that noise which nobody can tolerate is something that is the price of progress, but certainly noise as we ordinarily know it, certainly it is.

Mr. HEMPHILL. Thank you, Mr. Chairman.

The CHAIRMAN. Mr. Collier, do you have any questions?

Mr. COLLIER. Very briefly.

Mr. DOWNES. At the outset, I might say that I appreciate the fact that these hearings have made possible our acquaintance, Mr. Downes. It is nice to have you here, particularly since I had frequently in the past had occasion to call you on the telephone; thus meeting you in person is a pleasure.

I would, however, just like to make one statement. I think it would clarify what might be a misimpression that I know you did not intend to leave with regard to the property values in the suburban area.

Just recently the Chicago Tribune, as you may recall, ran a story pointing up the population growth in the so-called country towns as we know them in the Chicago area, embracing some 113 towns, cities, and villages, and almost without exception the population growth,

even those far departed from the area of O'Hare Field, enjoyed an expansion.

Likewise, the property values in those areas increased considerably.

In fact, as I recall, some of the areas adjacent to O'Hare International Airport, while they did increase, did not increase to the same degree as some of the other suburban areas.

I think it would be proper to further state at this time for the record that, admittedly, the commercial property values have increased in that area. I think, however, we will find that the rate of property value increases generally in residential areas increased only in some degrees to the same extent that residential property values increased throughout the entire suburban area, including those not near the field.

Mr. DOWNES. I think that is a fair statement.

Mr. COLLIER. And I think the gentleman will agree that the record should so show.

Thank you, Mr. Chairman.

The CHAIRMAN. Anything further?

Mr. Rogers?

Mr. ROGERS of Florida. Mr. Downes, from your testimony it seems that the airport, I think, has a very fine record. How much has been the Federal aid to O'Hare?

Mr. DOWNES. $16 million to date, and there is an allocation of approximately $4 million more.

Mr. ROGERS of Florida. I see.

Mr. DOWNES. Which has not been finalized.

Mr. ROGERS of Florida. In your testimony you stated that your land was first acquired, I believe, at an average of about $450 an acre. It has now gone up to $20,000 in some instances?

Mr. DOWNES. Yes.

Mr. ROGERS of Florida. It is estimated it will range up to $50,000?

Mr. DOWNES. Yes.

Mr. ROGERS of Florida. This is surprising to me that the increase should be so high if the noise problem is so great.

Would this property be used for residential purposes or for industrial purposes?

Mr. DOWNES. No.

Most of this has been county land which has been rezoned for industrial purposes, and, naturally, the increment is considerably more than it would be in residential territory.

Mr. ROGERS of Florida. You state, though, that actual zoning for land use is not yet a reality?

Mr. DOWNES. Yes.

Mr. ROGERS of Florida. Because it is complicated by the fact that the airport is located in two counties, Cook and Du Page?

Mr. DOWNES. Yes.

Mr. ROGERS of Florida. Does the city have the right of zoning in any area here?

Mr. DOWNES. Within the city of Chicago; yes, we can zone.

Mr. ROGERS of Florida. Has that been done?

Mr. DOWNES. Within the city, of course, zoning was present even before the airport, and that has been in effect for some time.

Mr. ROGERS of Florida. Did the—did it prevent residential development within a certain area of the airport?

Mr. DOWNES. Possibly 3 or 4 miles away from the airport there has been some residential construction within the city.

Mr. ROGERS of Florida. But that does not extend all the way around the airport?

Mr. DOWNES. No.

The city does not occupy the area all the way around.

Mr. ROGERS of Florida. To what extent is the airport covered by the city property, the east?

Mr. DOWNES. Well, actually it is by a very small amount. The annexation is of a narrow dimension, so if you want to get technical about it, it is a small strip that actually joins the airport to the city but there is a forest preserve controlled by Cook County in between. There is the outline of the city with respect to it, Congressman.

Mr. ROGERS of Florida. Do you not think that this is one of the major solutions of the noise problem, proper zoning around the airport?

Mr. DOWNES. It all depends upon what you mean by how far you can zone, Congressman.

Three to five miles away from the airport is one thing. Ten to twelve miles away from the airport is something else. Whether it is realistic to assume that you can zone 10 or 12 miles away is something I have no right to have an opinion on.

The law would govern this. I would have no opinion.

Mr. ROGERS of Florida. I realize you cannot zone, but I would think this bears very definitely on any study you might make on the noise problem, and I wondered if you had done that.

Mr. DOWNES. We have conferred with the Chicago Planning Commission on this subject; yes, sir.

Mr. ROGERS of Florida. What recommendations have you asked or made as a result of any study conducted by the airport authority as to zoning for the noise problem?

Mr. DOWNES. Wherever it is possible we recommend that it be zoned for manufacturing areas rather than residential occupancy.

(The following letter was later received from Mr. Downes:)

CITY OF CHICAGO DEPARTMENT OF AVIATION,
Chicago, Ill., August 27, 1962.

MR. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

DEAR MR. HARRIS: In the course of my recent appearance at a hearing before the subcommittee of the Committee on Interstate and Foreign Commerce concerned with jet noise in the Chicago area, I was requested to furnish to the committee a résumé of activities concerning airport zoning.

As was mentioned in my statement, zoning has been complicated by the fact that the Chicago O'Hare International Airport is located in two counties; that the area around the airport involves not only the two counties but many local governmental jurisdictions. To permit a single zoning effort to be effective, the city of Chicago exercised its efforts to have the legislative body of the State of Illinois amend its statutes to permit zoning by the State department of aeronautics.

The city of Chicago, through the cooperation and coordination of the department of city planning and the department of aviation, have had the matter of airport zoning under discussion for several years. The advent of jet transport aircraft hastened our efforts. The most tangible result to date is the legislation adopted early this year.

It is the current plan of the city of Chicago to request the State department of aeronautics, acting under the recently revised statutes, to zone the area around O'Hare Field. As a precedent to such request, the department of city planning is currently working on a proposed zoning action that will be suggested to the State department of aeronautics as a workable plan to guide development around the Chicago O'Hare International Airport.

Very truly yours,

WILLIAM E. DOWNES, JR.,
Commissioner of Aviation.

Mr. ROGERS of Florida. Thank you very much, Mr. Chairman.

The CHAIRMAN. Mr. Macdonald?

Mr. MACDONALD. No, thank you, Mr. Chairman. I have no questions.

The CHAIRMAN. Mr. Downes, thank you very much.

We appreciate your testimony.

Mr. DOWNES. Thank you.

The CHAIRMAN. Captain Bechtold, Capt. Edward J. Bechtold, of Eastern Air Lines, representing the Air Line Pilots Association.

Captain, you may proceed.

STATEMENT OF EDWARD J. BECHTOLD, ON BEHALF OF THE AIR LINE PILOTS ASSOCIATION, INTERNATIONAL

Mr. BECHTOLD. Thank you, sir.

Mr. Chairman, I would like first to thank the committee for allowing me to appear. I know your time is limited. My name is Edward Bechtold. I am a captain with a major airline and, I might add, for the past 26 days, I believe, the quietest airline in the world. I have been employed as a pilot with this carrier since 1945. I have been a rated pilot since 1940. For the past 10 years I have been directly engaged in air safety activities for the Air Line Pilots Association, serving as central safety chairman, regional accident investigator and safety chairman, and member of ALPA's air traffic control committee. I am here today as the personal representative of our president, Capt. Charles Ruby, and as the spokesman for more than 14,500 active airline pilots represented by ALPA.

These pilots are directly concerned with the deliberations of this committee, for the actions you gentlemen take could materially affect the safety aspects of operations at O'Hare International Airport. I would like to say and emphasize, the airline pilots are acutely aware of, and vitally interested in, both the noise nuisance and how it can be coped with.

We believe our records should show that our association was one of those recognizing that noise nuisance would become a problem to the aviation industry more than 10 years ago and at that time voluntarily joined forces with other groups to do something constructive about noise abatement.

Our efforts, we believe, have resulted in a decrease in noise levels and a substantial reduction in community noise annoyance.

As a matter of fact, in at least one area that has been monitored, it was found that pilot compliance with adopted procedures was better than 99 percent.

These efforts, of course, were almost entirely confined to what can be done in the cockpit. These actions, particularly in the new jets,

however, are limited by safety considerations. Unfortunately, all of those persons interested in aircraft noise are not, and cannot be, expected to be aware of the effect which some of the suggested procedures have on the safety of the aircraft in flight, nor, might I add, upon the safety of the persons and property underlying the flight path. As a consequence, some organizations have pressed for more and more noise relief through additional changes in operational techniques.

Frankly, we feel we have reached the end of the road in the search to solve the noise problem in this manner. It is the considered opinion of the pilot group that more relief cannot be achieved without compromising safety. Our problem, we feel, is clear. We have given all which our thousands of hours of experience indicates we can safely give in the way of changes in procedures and operating techniques. Yet, we are constantly faced with a demand for more. When we attempt to point out the safety aspects of the changes demanded, we find that the groups pressing us are not only reluctant to listen, but press for rules and regulations which, in the final analysis, can only usurp the judgment, skill, and training of the pilot.

Gentlemen, I can assure you that when air carrier aircraft are required to make approaches at higher than the normal glide angles, when power must be reduced without regard to performance during the most critical stages of flight and contrary to the basic rules of flying, when crosswind and downwind components for takeoffs and landings are pressed upon pilots in preference to landing and taking off into the wind, when arbitrary changes in the rules are implemented at the insistence of some, over the objections of those of us who are responsible for the safety of the flight—we think it time a realistic evaluation be conducted.

This is the position we find ourselves in today. In recognition of the experience now accumulated, and in complete concurrence with others' remarks already made and to follow in these hearings as to pilot efforts to date, we feel it pertinent that this committee be made aware of recent ALPA policy mandated at the 17th biennial convention, and which this organization is presently endeavoring to coordinate with ATA, FAA, and the National Aircraft Noise Abatement Council. It is the firm conviction of our association that for the safety of our passengers, and of our individual members, this policy must be adhered to.

In view of the growing activity at O'Hare International, and even though the techniques and procedures outlined by the following eight points have not come into sharp focus at this airport to date, it is our thought that in order for you to have a complete understanding of the noise problem from all sides, they must, of necessity, be made a part of the record.

And I might say that these eight points are listed without explanation, but if you do have any questions, why, we are prepared to answer them:

The association maintains the position that aircraft noise should be reduced by engineering and design and not by marginally safe flying techniques: Therefore be it

***Resolved*, That ALPA refuse to endorse or accept noise abatement procedures which require—**

1. Clearances or communication designed to change headings at low altitudes for noise abatement purposes.

2. Turns below 600 feet for noise abatement purposes.

3. Reduction of power, earlier or to a greater extent than is done on a normal takeoff.
4. Climbs at airspeeds less than maneuvering speeds for the existing flap configuration.
5. Procedures when weather is below 1,000-foot ceiling and visibility less than 3 miles.
6. Preferential runways for noise abatement purposes when—
(a) Runways are wet.
(b) A wind of greater than 10 knots velocity or a wind angle which exceeds 80° from the runway heading exists.
(c) A tailwind greater than 5 knots for takeoff or landing.
7. Requirement that approaches be conducted above glide slope for noise abatement purposes.
8. Communication other than that required for standard traffic separation during takeoff and approach.

On this last, that is other than tower communications. For example, a noise monitoring station, and so forth.

As professionals, we have endeavored in the past and will continue in the future, to do all possible to minimize noise. The ALPA along with others in aviation has been called upon for professional advice to help solve the problem. We feel we have done our utmost to work out solutions to the satisfaction of the communities. As you have heard in this hearing there is no immediate solution to the noise problem. The cure can be found, in our opinion, in two places: (1) adequate zoning and research, and (2) noiseless engines. Safety in this area cannot and, we feel, must not be regulated. Final judgment must remain in the cockpit.

We pledge our continued upport of noise reduction programs which are based on the sound philosophy of giving first consideration to the safety of operation, as has been and, we hope, will continue to be done at O'Hare International.

Thank you.

The CHAIRMAN. Captain, thank you for your statement. You envisage a noiseless engine sometime?

Mr. BECHTOLD. No, I do not, sir.

The CHAIRMAN. Any questions, Mr. Hemphill?

Mr. HEMPHILL. Thank you for your statement, and, as for the resolution, I, for one, endorse it.

I think it is essential for the safety of the aircraft that you are trying to operate that these are observed, and I am glad you said it.

Thank you.

Mr. BECHTOLD. Thank you.

Mr. YOUNGER. Just one question, Mr. Chairman.

On page 2 you state:

We find that the groups pressing us are not only reluctant to listen, but press for rules and regulations which, in the final analysis, can only usurp the judgment, skill, and training of the pilot.

Has your association ever met with the Noise Abatement Committee of the City of Park Ridge?

Mr. BECHTOLD. I cannot answer that sir,

Mr. YOUNGER. Do you know whether you have ever been requested to meet with the Noise Abatement Committee of the City of Park Ridge?

Mr. BECHTOLD. No, sir; I do not know.

Mr. YOUNGER. That is all, Mr. Chairman.

Mr. BECHTOLD. I might add that we have met with other community groups and civic organizations and discussed these things at great length.

The CHAIRMAN. Mr. Rogers?

Mr. ROGERS of Florida. Yes, sir, I have a question or two, Mr. Chairman.

On page 2, Captain, you stated, pages 2 and 3, that you think it is time for a realistic evaluation to be conducted when you are required to make approaches at higher than normal glide angles when power must be reduced without regard to performance, and so forth.

Now, are you telling this committee that you, as a pilot, even though you feel that power should be needed, you would need to reduce simply because of a regulation? I thought you had control of the craft, and if you felt a certain amount of power was needed, surely you would use whatever power is necessary, even though someone had said, "Now, we prefer that you use the same amount of power because of noise."

You would use your command authority and use whatever power is necessary, would you not?

Mr. BECHTOLD. Well, let us take the first part first.

Mr. ROGERS of Florida. All right.

Mr. BECHTOLD. Insofar as higher glide angles are concerned, we now have a regulation, 60.18 to be exact, which states that you must remain at or above the glide slope angle.

When we fly airplanes, we do our very level best to stay right on it, and if we do err, we hope to maintain an angle above.

But should we slip underneath, we do not feel it is right to be subject to violation for doing that sort of thing.

Now, in regard to the second part, I do not believe that anybody in his right mind would knowingly ask you to pull power off. Nevertheless, in the adoption of noise procedures, we have leaned over backward in trying to cooperate, and it is a fact that power is reduced in a different manner from which it is normally reduced. This makes the operation marginal.

This is what we are talking about.

The point is not that it is unsafe to do it if everything else is working fine, and we have done our very level best to try to cooperate in this regard.

Mr. ROGERS of Florida. I am sure you have, but the point I am making is that you are not bound by any regulations as far as reducing power if, in your judgment as a commander of an aircraft, you feel certain power is needed.

Mr. BECHTOLD. Well, this is sort of an insidious thing, let us put it that way. Certainly, in the final analysis, my judgment is what counts. But if I know you are going to be second-guessing me all the time and telling me that I did it the wrong way, why, chances are I am going to try to do it your way first, and this is exactly what is happening, sir.

Mr. ROGERS of Florida. Yes.

Well, the point I am making is that I do not want to give to the public the impression that a commander of these aircraft would not have the right to do whatever is necessary for the safety of his passengers.

Mr. BECHTOLD. I would hope it would always remain that way, and, as I say——

Mr. ROGERS of Florida. Does it not now?

Mr. BECHTOLD. It does right now. You are correct, sir. Yes, sir, and what we are hoping is that it will always remain that way.

Mr. ROGERS of Florida. Continue?

Mr. BECHTOLD. Yes, sir.

Mr. ROGERS of Florida. I am sure this committee will agree that safety is what we are very much concerned with, but where it can be moderated in these fields, why, we would want to do it.

Now, let me ask you this, just a question or two more, Mr. Chairman. You said on page 3:

"* * * even though the techniques and procedures outlined on the following eight points," which you mentioned, and so forth, you say, "have not come into sharp focus" at O'Hare. Now, do you mean these certain things have not been done or have been done at O'Hare?

Like No. 1, clearances or communication designed to change headings at low altitudes.

Mr. BECHTOLD. We are not bothered with these particular things at O'Hare today.

Mr. ROGERS of Florida. Are any of these causing you trouble at O'Hare today?

Mr. BECHTOLD. No, sir.

Mr. ROGERS of Florida. Do you know any particular airport where these points are causing you trouble?

Mr. BECHTOLD. Yes, sir.

Mr. ROGERS of Florida. Which airports?

Mr. BECHTOLD. Idlewild Airport, New York.

Mr. ROGERS of Florida. Pardon?

Mr. BECHTOLD. Idlewild Airport in New York.

Mr. ROGERS of Florida. Is this the main airport you had in mind?

Mr. BECHTOLD. Yes, sir.

Mr. ROGERS of Florida. In bringing these up?

Mr. BECHTOLD. Yes, sir.

Mr. ROGERS of Florida. Which particular ones?

Could you designate the ones that have caused trouble at Idlewild, or could you designate for the record? You may not have that information available to you right now.

Mr. BECHTOLD. We would be happy to supply this later on, if you would like.

Mr. ROGERS of Florida. Thank you very much, sir.

Mr. MACDONALD. Would you yield for one question?

Mr. ROGERS. of Florida. Yes.

Mr. MACDONALD. Captain, on page 3 where you enumerate the procedures, what is the reason that you do not want to take a turn below 600 feet?

Mr. BECHTOLD. The circling minimums for jet-type aircraft are based on 600 feet, and in looking for a standard we just fell down on 600 feet.

We realize—and we did this with great deliberation and consideration—that normally 500 feet has been accepted as a minimum altitude turn. But what we run into in this particular situation is simply this:

You have got to read all eight points to understand where the 600 feet fits in.

Mr. MACDONALD. Yes.

Mr. BECHTOLD. By being encouraged and pushed into making turns shortly after takeoff, we found that this was derrogating safety and compromising safety. We decided that if we maintained 600 feet, it would fit a pattern consistent with the way we normally operate the aircraft.

Mr. MACDONALD. You do not object to taking these turns at 600 feet unless they are for noise abatement purposes?

Mr. BECHTOLD. That is correct, not below 600 feet.

Mr. MACDONALD. That is what I do not quite understand, and I will not belabor it, but if it is all right to take a turn at 600 feet for one purpose, why is it not all right to take it at 600 feet for another purpose?

Mr. BECHTOLD. Perhaps I could better explain it this way.

I see that I am not getting through to you, and it is not your fault; it is mine.

What we had reference to there was the fact that in case of emergencies or situations that we had to meet that arose very quickly, if an airplane showed up in front of us or something like this, why we would make these turns, and we recognize we have do do this, and we do this in our daily operation.

But for strictly noise abatement purposes, we do not feel that this is a necessary thing to be forced to do.

Mr. MACDONALD. A last question:

There was an accident, was there not, with an aircraft taking a turn at Idlewild some 2 months ago?

Mr. HEMPHILL. American.

Mr. MACDONALD. An Electra, I think it was.

Mr. BECHTOLD. There was an American Airlines accident at Idlewild in March.

Mr. MACDONALD. It was a 707.

Mr. BECHTOLD. 707, that is correct.

Mr. MACDONALD. It was taking a turn, was it not?

Mr. BECHTOLD. It was in a climb-out pattern.

Mr. MACDONALD. At what level?

Mr. BECHTOLD. At the altitude that it finally went down, I think the highest altitude it reached was 1,862 feet, according to the recorder.

Mr. MACDONALD. That accident had nothing to do with this resolution being adopted?

Mr. BECHTOLD. We do not state that this accident was a result of noise or that it was not. We do not know.

Mr. MACDONALD. Thank you.

No further questions.

Mr. ROGERS of Florida. Let me just ask you this, Captain. Are you required to turn below 600 feet at Idlewild?

Mr. BECHTOLD. They have a procedure at Idlewild which encouraged us to turn as soon as practicable to a heading in order to avoid a noise sensitive area, and so, to answer your question, "Yes."

Mr. ROGERS of Florida. They encouraged you. Was this a requirement?

Mr. BECHTOLD. This was a procedure which was adopted, and we voluntarily agreed.

Mr. ROGERS of Florida. I see.

Mr. BECHTOLD. In the interests of trying to be cooperative. But the point was that we found ourselves going overboard on this sort of thing.

Mr. ROGERS of Florida. Yes.

Now, has that been changed since you found it not to be a practical thing to do?

Mr. BECHTOLD. Let us say we are negotiating that.

Mr. ROGERS of Florida. You have brought it to the attention of the authorities?

Mr. BECHTOLD. Oh, yes, sir.

Mr. ROGERS of Florida. And made your feelings known?

Mr. BECHTOLD. Yes, sir.

Mr. ROGERS of Florida. But you are still carrying out this procedure that they suggested?

Mr. BECHTOLD. No, the pilots are not doing this. The pilots are not doing this.

Mr. ROGERS of Florida. They are going ahead like they feel is proper?

Mr. BECHTOLD. That is correct, yes, sir.

Mr. ROGERS of Florida. Thank you.

Mr. HEMPHILL. Any questions, Mr. Collier?

Mr. COLLIER. Yes.

Thank you, Mr. Chairman.

Captain Bechtold, I have kept completely away from procedures and operating techniques for the very simple reason that I do not know a thing about it.

In fact, driving a car in Washington taxes the extent of my pilot abilities. Hence I may express some ignorance in the question I am going to ask.

First I want to ask you, Captain, have you in your years of experience operated out of O'Hare Field?

Mr. BECHTOLD. Very infrequently, to be honest with you.

Mr. COLLIER. There has been testimony here that frightened me: that in areas 5 miles from O'Hare Field jetplanes fly 800 to 900 feet above the ground. Would you say, if that were true, that that would be in line with safe operations of an aircraft?

Mr. BECHTOLD. That is on takeoff? Is that what you have reference to?

Mr. COLLIER. No, landing. As I understood it, 5 miles from O'Hare Field jets allegedly come in at levels of 800 feet, notwithstanding the regulation, which I think is 1,200 or 1,500 feet.

Mr. BECHTOLD. To answer your question specifically, there is nothing unsafe about being at 800 feet, but I do not believe you will find anybody doing this in an actual operation, because this is not the way we would fly the airplane.

We would not be at that altitude that far out.

I would be surprised if I did see somebody do this. There must be some other reason which we do not know about.

Mr. COLLIER. Captain, would the average pilot prefer to land with a sort of a short final approach or a long final approach?

Mr. BECHTOLD. This does not make too much difference. We can do it any way you like. We like to establish a pattern within a couple of miles of the airport.

Mr. COLLIER. I asked that because it seems that noise can be abated better on a longer final approach than a short final approach. Yet, the noise problem seems to develop more from the short final approaches, to which the folks who have this noise problem object principally.

I thought perhaps we might establish that the pilots and folks that were plagued with the noise problem would be in accord in the matter of the quieter approaches.

Mr. BECHTOLD. I would answer that in this way:

We can tailor our operation to suit you people, which is what we have tried to do.

We have tried long approaches; we have tried short ones.

It depends on the communities that we fly over.

We have worked with the community people and with the airlines and all the other interested parties, FAA, and so forth, to try to find out exactly what type of approach would be the best.

In some instances, a long one seems to be more desirable than the short one.

In some instances, they try to bring you straight in on long approaches.

In others, we find that this keeps you over the sensitive areas, and so, therefore, they will vector you away from them.

Mr. COLLIER. Is it proper, then, for us to conclude from your statement that such relief as may be obtained in curbing air noises does not rest with the procedures of pilots, but, rather, with other operational functions at the airport?

Mr. BECHTOLD. I would concur with that remark for the ultimate resolution, yes.

Mr. COLLIER. Thank you, sir.

That is all I have.

Mr. HEMPHILL. Mr. Rostenkowski?

Mr. ROSTENKOWSKI. Mr. Bechtold, I am sorry, I was not here for your statement. However, I have read some of it. There was testimony yesterday with respect to a holding pattern some 7,000.

Is it feasible from a 7,000-foot-high holding pattern to descend with a minimum amount of noise over a given area in order to land?

Mr. BECHTOLD. That would depend on a lot of considerations.

I do not think that I would be prepared to give you a yes or no answer to that, because very infrequently do you have that long a shot, a straight shot, to the runway. I mean there is always other traffic, and you are being vectored. Well, I just have not run into that particular situation, perhaps, unless it happens to be at 2 o'clock in the morning when nobody else was around.

Then you could do it.

Mr. ROSTENKOWSKI. Are you permitted at O'Hare International Airport to turn at lower than 400 feet after takeoff, or at 400 feet, to fan out?

Mr. BECHTOLD. I am sorry, I cannot answer that question because I am not operating in there.

Mr. ROSTENKOWSKI. Could you find that out for us?

Mr. BECHTOLD. Yes, sir; I certainly can. I will be happy to.

Mr. ROGERS of Florida. Will the gentleman yield?

Mr. ROSTENKOWSKI. I yield.

Mr. ROGERS of Florida. It was suggested yesterday that it might help the problem if planes taking off toward the east, which is, I believe, on runway 9, could follow the highway straight on out, and perhaps when they are brought in, be held over the lake, and then come in at a point maybe 20 miles away from the airport, rather than maybe 5 to 10 miles, as is presently done, as I understand it.

What do you think of that procedure?

Mr. BECHTOLD. Again, Mr. Rogers, we could tailer ourselves, our operation, to anything. I mean there is nothing wrong with the procedure. The thing is this is not the only consideration.

Mr. ROGERS of Florida. Yes.

Mr. BECHTOLD. As we get the story.

Mr. ROGERS of Florida. That is what I wanted you to express yourself on.

Mr. BECHTOLD. Yes.

Mr. ROGERS of Florida. If you thought there were other problems that would make this difficult or not.

Mr. BECHTOLD. It would not be difficult, but I do not think that you would move the traffic, as has been pointed out here before, and I think then it becomes a matter of how much convenience can you provide for the passenger and what is the economic factor.

Insofar as flying the airplane is concerned, this is no problem. We can do this.

Mr. ROGERS of Florida. Thank you.

Mr. ROSTENKOWSKI. Would this abate noise?

Mr. BECHTOLD. Frankly, I do not see where it would.

Mr. ROSTENKOWSKI. In other words, if you are out 16 miles and you are up 7,000 feet and you are gliding in, it would not abate any noise.

You think that the procedures that are in effect now would not curtail any noise?

Mr. BECHTOLD. I do not believe that this procedure you speak of would help too much, because I do not think it is a practical procedure, to begin with, in the operation we have today.

I mean you are going to sacrifice one for the other. If you want to make the sacrifice, then I suppose I could concede that it might possibly make it a little less noisy.

Mr. ROSTENKOWSKI. That is what we are trying to find out here, how we can abate noise.

Mr. BECHTOLD. Yes.

Well, I appreciate this.

Mr. ROSTENKOWSKI. Thank you, Mr. Chairman.

Mr. HEMPHILL. Mr. Devine?

Mr. DEVINE. Captain, are you an active pilot today?

Mr. BECHTOLD. Yes, sir; I am.

Mr. DEVINE. What type of equipment do you fly?

Mr. BECHTOLD. I am flying Electras, DC–7's, Constellations.

Mr. DEVINE. Are you flying 707 or DC–8 at all?

Mr. BECHTOLD. Not at the moment; no, sir.

Mr. DEVINE. What is your general area of operation? What airports do you fly in and out of? Are you on an assigned route?

Mr. BECHTOLD. I fly New York, San Juan, Miami, Houston, St. Louis, Atlanta, Boston.

Mr. DEVINE. A number of international airports?

Mr. BECHTOLD. I think so.

Mr. DEVINE. Would it be accurate, Captain, to summarize your statement this way:

That the Air Line Pilots Association is certainly willing to offer their fullest cooperation commensurate with safety, but that you feel the problem of noise abatement primarily rests in the area of engineering, design, zoning, and research?

Mr. BECHTOLD. I think that would be a fair evaluation, yes.

Mr. DEVINE. Thank you, Mr. Chairman.

Mr. HEMPHILL. Thank you very much.

I think we can summarize your statement also by saying that the guy up there flying, he wants to live, too, does he not?

Mr. BECHTOLD. After me you come first.

Mr. HEMPHILL. Right.

Thank you so very much.

Mr. MACDONALD. Could I ask one question, please, Mr. Chairman.

You said you flew to Boston?

Mr. BECHTOLD. Yes, sir.

Mr. MACDONALD. Is there a noise problem in Boston at International?

Mr. BECHTOLD. I think the noise problem is making itself or is evidencing itself at a lot of airports, and I think Boston probably is one, too.

Mr. MACDONALD. How often do you fly into Boston?

Mr. BECHTOLD. It depends on what my route is. Right now I am not operating, of course, and I was not flying there before the strike began. But I have been up in there within the last few months.

Mr. MACDONALD. In any event, you have flown in enough to be familiar with the landing pattern?

Mr. BECHTOLD. Yes.

Mr. MACDONALD. How can there be a noise problem if you come in off the ocean?

Mr. BECHTOLD. We do not have the problem coming in off the water.

Mr. MACDONALD. It is going out?

Mr. BECHTOLD. The problem is going out northeast over the residential area just to the northeast of the airport. I do not recollect the name of the community, but that is the main problem.

Mr. MACDONALD. Thank you.

Mr. HEMPHILL. Any other questions?

We certainly thank you, sir, and appreciate your coming here to give us this testimony.

The chairman just asked me to announce that we will recess and convene at 2 o'clock in this room.

Mr. Leonard, we will expect to hear from you at that time. Mr. Cram and Mr. Bernard. Is Mr. Bernard here?

Mr. BERNARD. Yes, sir.

Mr. HEMPHILL. Is there anybody else who expects to testify this afternoon?

The committee will recess now until 2 o'clock.

(Whereupon, at 12:05 p.m., the hearing was adjourned, to reconvene at 2 p.m., of the same day.)

AFTERNOON SESSION

Mr. HARRIS (presiding). The committee will come to order.

I hope we can proceed to hear these distinguished people who are to testify.

The first witness this afternoon will be Mr. Paul C. Leonard, assistant regional manager, Chicago regional operations, for the Air Transport Association of America. Mr. Leonard?

STATEMENT OF PAUL C. LEONARD, ASSISTANT REGIONAL MANAGER FOR THE AIR TRANSPORT ASSOCIATION OF AMERICA; ACCOMPANIED BY CAPT. GEORGE T. HENDERSON, FLIGHT MANAGER, AND JAMES McGINN

Mr. LEONARD. My name is Paul Leonard. With me today is Capt. George T. Henderson, a flight manager of a major airline operating at Chicago O'Hare Airport, and also Mr. James McGinn.

Mr. Chairman, in the interests of clarity and to make our presentation as brief as possible, we will outline in our presentation certain noise abatement practices.

The CHAIRMAN. We have plenty outside of the window here, much less inside the room.

Mr. LEONARD. Mr. James McGinn will point these procedures out on the chart as we go through them.

The CHAIRMAN. Yes.

You have with you whom, so we will get who these gentlemen are?

Mr. LEONARD. With me I have Capt. George Henderson, a jet-qualified pilot of a major air carrier operating at O'Hare Airport.

The CHAIRMAN. What air carrier?

Mr. LEONARD. The United Air Lines, sir.

The CHAIRMAN. Then you have someone else who will operate the chart?

Mr. LEONARD. Mr. James McGinn will do that.

The CHAIRMAN. You may proceed, Mr. Leonard.

Mr. LEONARD. My name is Paul C. Leonard. My office and residence are in the city of Chicago. I am the assistant regional manager for the Air Transport Association of America speaking on behalf of the U.S. scheduled airlines serving the Chicago airports. I have been employed in the field of aviation for over 18 years; from 1943 to 1946 with the U.S. Army Air Corps specializing in flight assistance service and aviation communications; from 1947 to 1958 in the employ of the Civil Aeronautics Administration, the predecessor of the Federal Aviation Agency. Since 1955 I have worked in the Chicago area in the field of air traffic control for the Civil Aeronautics Administration until assuming my present position in August of 1958 with the Air Transport Association of America.

The ATA represents virtually all of the U.S. certificated scheduled airlines. My position with the ATA in the central region includes serving member airlines in an 11-State area, and particularly, the responsibility of serving these carriers through the ATA Chicago operations office. This position involves, among other things, the responsibility of cooperating with all other concerned agencies and parties in aircraft noise abatement efforts.

During my tenure in the ATA Chicago office, the airlines have responded with a deep awareness of responsibility toward taking every reasonable measure consistent with safety to alleviate aircraft noise problems in the Chicago area. In doing so, we have worked closely and jointly with the Federal Aviation Agency, the Air Line Pilots Association, and the City of Chicago Department of Aviation. We have taken cognizance of all noise complaints involving airline aircraft, and, as a result, have cooperated fully in the development—on a voluntary basis—of noise abatement procedures.

Since 1959, all parties concerned have responded to aircraft noise complaints regardless of whether registered on an individual or group basis. We have acted upon our mutual problem through meeting with groups such as the Aviation Committee of the Chicago Association of Commerce and Industry; through community meetings participation; through frequent discussion of noise abatement procedures with FAA air traffic control personnel; through discussing noise problems and procedures with responsible officials of communities surrounding O'Hare Airport. Factual information has been provided to all interested citizens and groups. Concerned parties have visited and interviewed complainants in order to obtain more specific information on noise problems and problem areas.

In order to maintain a continuous liaison of aircraft noise matters, the City of Chicago Department of Aviation, the Air Line Pilots Association, the Federal Aviation Agency, and the airlines have an extremely cooperative relationship. Together these organizations keep the thoughts and feeling of the general public and specific complainants continually in mind.

As a result, the following noise abatement procedures have been developed on a voluntary basis for O'Hare International Airport:

1. Departing aircraft climb to 2,000 feet above the surface as rapidly as practical—consistent with safety. Landing aircraft maintain an altitude of 2,000 feet above the surface as long as possible wherever weather is not a factor.

These procedures produce faster climbs and steeper descents and consequently lower noise levels on the ground.

2. When weather permits, a noise abatement procedure is followed by airline aircraft. Westbound flights departing on runway 32L make a left turn to the northwest away from heavily developed residential areas. When this is not possible because of weather conditions, the aircraft maintain their takeoff heading until reaching 2,000 feet above the ground before starting their turn to the left and toward the west.

3. Straight-in approaches to both runways numbered 32 (to the northwest) were developed.

This procedure eliminated low altitude circling approaches to both runways numbered 32.

4. An instrument landing system to serve runway 27 has been installed specifically to eliminate low altitude circling approaches, the majority of which previously operated over the area east of O'Hare Airport. This facility also provides slope guidance to aircraft making straight-in approaches to this runway.

5. Visual approach slope indicator equipment was recommended and installed to serve approaches to runway 32L (northwest). This approach aid provides glide slope guidance and assistance to the pilot in eliminating low, flat approaches in visual flight rule conditions.

6. A landing pattern from the west side of O'Hare Airport was established for approaches to the two northwest (32) runways. Prior to the establishment of this landing procedure, all aircraft planning to make instrument landings to the northwest circled the area on the east side of O'Hare Airport.

The plan to establish a consolidated FAA air traffic control approach control facility in the Chicago metropolitan area will, we are confident, permit the further development of even more effective air traffic control procedures for instrument operations. Such procedures could include, but are not limited to, on course and more rapid climbs to departure airways and longer approaches from higher altitudes for arriving flights.

I am certain, Mr. Chairman, you will be interested to know that as of July 1, 1962, the number of scheduled carrier turbojet operations in and out of O'Hare Airport averaged 400 operations daily. The types of turbojet aircraft utilized are Boeing–707, Boeing–720, Convair 880, Convair 990, Caravelle, and Douglas DC–8.

Chicago most often is referred to as the "crossroads of the Nation." From an aviation standpoint, this is substantiated by the fact that 72 cities across the United States are served by direct flights from Chicago O'Hare Airport. At least 50 percent of the existing scheduled domestic air carrier jet aircraft fleet currently operate through O'Hare Airport on a daily basis, and an average of a million passengers a month are being served by scheduled flights using O'Hare Airport.

In conclusion, the airlines desire to be good, safe neighbors in the airport community. To this end, we have developed the best possible procedures consistent with safety to restrict noise levels to within the airport area. Let us assure you further, that in the performance of our obligations to the public and conduct of our operational responsibilities, we, in the airlines, place noise-abatement consideration second only to safety in importance. We, therefore, are hopeful that our airport neighbors will continue to acknowledge, support, and be understanding of our efforts.

On behalf of the airline members of the Air Transport Association operating into O'Hare International Airport, I wish to thank you for this opportunity to indicate their interest in noise abatement.

The CHAIRMAN. Thank you, Mr. Leonard.

That concludes your statement, I judge?

Mr. LEONARD. Yes, sir.

The CHAIRMAN. Any questions by members of the committee?

Mr. Younger?

Mr. YOUNGER. Mr. Leonard, in your résumé of the various changes and work on the runways, at no time did you mention runway 9, which seems to be the one runway that appears most prominently in all the testimony to date. Why?

Mr. LEONARD. Mr. Younger, we did mention runway 27.

Mr. YOUNGER. Runway 9 is the one that was mentioned all the time by the group from Park Ridge, and that is the one that seems to cause so much trouble.

You did not mention anything pertaining to that runway in your résumé and I want to know why.

Mr. LEONARD. As you know, runway 9 is the same runway as runway 27.

Mr. YOUNGER. Not the way they outlined it the other day.

Mr. LEONARD. The takeoff end would be runway 9. In the instance here, the ILS serves runway 27, so if you were taking off east, you would be taking off on runway 9.

Mr. YOUNGER. The runway going northeast or northwest?

Mr. LEONARD. In other words, this is runway 9/27, the east-west runway.

Mr. YOUNGER. Runway 9 and runway 27; is that the same runway?

Mr. LEONARD. It is the same concrete, sir. It is runway 9 in the easterly direction. It is runway 27 in the westerly direction.

Mr. YOUNGER. That was not made clear before. There seemed to be two different runways.

Now, I notice that you say that you have worked closely and jointly with the Federal Aviation Agency and the Air Line Pilots Association in the city of Chicago.

At no time have you mentioned about the group in Park Ridge which has been one of the really active groups that have organized a committee on noise abatement. Have you worked with them at all?

Mr. LEONARD. Yes, we have, and I believe this we indicated in the second paragraph of page 2, or the first paragraph.

Mr. YOUNGER. You mentioned community groups, yes, in general, but specifically——

Mr. LEONARD. We have worked with all of them that have been interested.

Mr. YOUNGER. Specifically, I want to know whether you have worked with that particular group, because they seem to have organized a rather well-rounded abatement group. Now, have you worked with them at all?

Mr. LEONARD. Yes, sir, we have.

We have worked with them very frequently, and we have found them to be very rational people to work with, and a pleasure to work with.

Mr. YOUNGER. If a group was organized composed of all of the various factors around O'Hare, would you be willing to serve on that committee?

Mr. LEONARD. If asked to, I would serve; yes, sir.

Mr. YOUNGER. That is all, Mr. Chairman.

The CHAIRMAN. Mr. Collier?

Mr. COLLIER. Thank you, Mr. Chairman.

During Mayor Overbeck's testimony yesterday, he pointed out that during a period—and I might not be entirely accurate by recollection—there are some six or seven flights that are all scheduled out of O'Hare going east at exactly 12 noon, and, further, that over a span of 10 to 15 minutes, there were 12 flights scheduled. This, of course, prompts the question as to why this might be necessary, or what relief might be provided through a staggering of the takeoff schedules.

I just wonder what the reason would be, of course, for having six or seven flights all scheduled to depart going in the same direction at 12 o'clock sharp.

Mr. LEONARD. Mr. Congressman, as indicated in our statement, 72 cities are served on a direct basis daily from the Chicago O'Hare Airport, so, while you would have 15 flights taking off within a 15-minute period, these flights are only serving 15 of those 72 communities, and the schedules, which I believe we all would have to agree is a complex problem, the schedules are determined by the traveling public's traveling habits.

Mr. COLLIER. This I can understand. Primarily, the task of any airline is to accommodate the desires and demands of the public.

But where you have two different airlines, let us say, going to the same point and leaving at the same time, it would seem to me that this does not help the noise problem in any manner, but, rather, actually compounds it.

Is any effort made to coordinate this between airlines on these identical departures?

Mr. LEONARD. The airline operations are public knowledge, and each company can take cognizance of each other's operations. They are scheduled flights. This is done on a published information basis.

Mr. COLLIER. Is any effort made, to your knowledge, by the FAA or the airport authority to prevail upon a carrier to stagger to some degree the departure time when, in fact, this situation exists?

Mr. LEONARD. I do not believe they exercise that authority at the present time, Mr. Congressman, and I have no knowledge of any such effort.

Mr. COLLIER. In your opinion, would it be feasible to stagger schedules where this situation occurs, say, for even a period of 10 minutes?

Mr. LEONARD. I do not believe so, Mr. Congressman. I believe it would be like trying to untangle a keg of worms, because quite frequently the aircraft utilization itself is not the important thing, but what time it is departing one location. It is how important it is to have the aircraft at another location at a certain time.

Mr. COLLIER. Would you say that in most cases, however, under most conditions, that the flight arrivals' variation is as much as 10 minutes? At least that has been my experience, and I do a great deal of flying. Therefore, the departure variation of 10 minutes, it would seem to me, based upon the patterns of arrival, would not result in any great calamity.

Mr. LEONARD. As arrival times do vary, certainly, by 10 minutes, and in many cases this is due to the wind conditions encountered en route, so can your departure times vary.

If eight flights are scheduled at noon, why, it is no guarantee that these eight flights are going to get off at 12 o'clock.

Mr. COLLIER. I am taking a hypothetical case of two flights leaving at exactly the same time for the same destination, and when I say "hypothetical," I use that expression, although I know that this is actually the case.

Therefore, I wondered why they could not be staggered so that you would not have one jet zooming out immediately after the other or racing for a position on the takeoff runway at the same time.

It just would seem feasible that this could be worked out. It could be one of the means by which this problem could be alleviated in a practicable manner.

Mr. LEONARD. I believe, Mr. Congressman, seriously, that if you tried to, you would be retarding the growth of aviation; that this is acknowledged as the major method of travel today and, certainly, we are not operating empty aircraft.

Therefore, the market is there, and these are the times that people want to travel.

Mr. COLLIER. Would not the market be there at 10 minutes of 12, as well as 12 o'clock?

Mr. LEONARD. The airlines have conducted some very interesting studies on the travel habits of the people of the United States, and these have conclusively proved that you can vary a flight by 10 minutes and you can wind up with 50 percent of the passengers you might have had if it was scheduled 10 minutes differently.

Mr. COLLIER. I think you understand that I certainly am not trying to make policy for an airline which has a responsibility to itself, to its operation, and to the flying public, but we are seeking practical means to meet to some degree the problem which we face, and my line of questioning is for the purpose of determining whether possibly this is not one area that would not cause a great calamity that would provide such relief to some degree.

In other words, Mr. Leonard, I would hope that we would come out of these long and rather arduous hearings with some plan or some recommendations or conclusions that would indicate that some progress has been made toward this very, very knotty problem.

We have been foreclosed apparently in the area of techniques and procedures by the statement, which I do not question, of the Air Line Pilots Association, and it looks like we are being boxed in on all sides in finding some area of relief from this problem.

Mr. LEONARD. Keeping the aircraft on the ground for an additional 10 minutes does not eliminate the noise problem. And schedules are clustered because of the demand, sir.

Mr. COLLIER. As I understand it, it would eliminate the noise problem, Mr. Leonard, to this extent:

That you have this fanning out procedure which creates the noise problem. By not having these flights take off almost nose on tail, it would eliminate the necessity of this wholesale fanning out and would provide a degree of relief so that the planes could continue at a wider interval of takeoff to go straight out and, of course, make greater altitude in the so-called straighter takeoff that occurs under this process that Mayor Overbeck described yesterday.

Mr. LEONARD. In my opinion, if you limited your aircraft departures to a one-at-a-time basis, and stopped your operation until that one particular aircraft was fit into the air traffic control system, this would impede this national system of air travel all across the country, all across the United States, because this would delay the arrival of the aircraft to all of these 72 different cities that are served from O'Hare Airport.

Mr. COLLIER. Let us assume, then, Mr. Leonard, for a moment, that if that is the situation with the different types of equipment that travel at different speeds, that then, therefore, there would be relief in hav-

ing maintained at Midway the conventional planes to alleviate the problem.

This, it just seems to me as one who is not an expert, would be one area of relief that we might be able to provide.

Mr. LEONARD. What this would cause is a considerable amount of confusion on the ground and inconvenience for the passenger.

As pointed out earlier, Chicago is probably the greatest crossroads terminal for exchange traffic in the United States. For example, during the month of March this year, one local service carrier serving Chicago, greater than 86 percent of their traffic was exchange traffic, and not Chicago terminal traffic.

Mr. COLLIER. Up to now—and I do not direct this necessarily to you—but as we have moved through these hearings, it seems to me that everyone is sympathetic with the plight of the people in the area.

Yet, their problem, as it exists, is secondary to the problems of everyone else.

The FAA takes the position that they do not know how far their jurisdiction or authority extends in this area, and, of course, we all have problems and we all have to live together and we all have to make sacrifices when we have these conflicts.

This is all we are trying to do, is to find out where each of us can make some concessions, and I know that the people in the area are going to have to continue to make concessions in accepting the degree of nuisance that goes along with progress and advancement in air travel. But, as reasonable men, we should make some effort, I think all of us, to recognize this problem, not only in the sense of being sympathetic, but in the sense of trying to, where we can, on a practical basis, do something about it.

Mr. LEONARD. Actually, your fanning-out method that we have discussed at considerable length provides a certain measure of relief to certain areas because it provides a greater distribution of your departure traffic.

Mr. COLLIER. At O'Hare, I do not think, Mr. Leonard, this is entirely true, because the fanning out simply necessitates flying over the more densely populated areas, where, as I understood the explanation that was given to us, the direct route would, in fact, provide relief. It would bring about the planes flying in an area at an altitude where it would not create a disturbance to the residents that a fanning-out process does.

Mr. LEONARD. If we draw a thin-line departure route, it would certainly restrict departures so that the separation of aircraft would have to be provided on the ground or before the aircraft leaves the ground.

This would confine, then, all departures to where you are bombarding the same people all the time.

Mr. COLLIER. Except for one thing, and I hate to belabor it for I know the time is limited.

We would be bombarding the same people, so to speak, were it not for the fact that this area is not as densely populated. Furthermore, the planes would then be able to achieve an altitude in this direct line that would reduce the noise and the nuisance with this direct takeoff rather than the fanning takeoff that was described to us.

Mr. LEONARD. I believe in this instance you are talking about operating in one direction.

Mr. COLLIER. It is one direction on one of the two runways that has been causing the trouble.

To go into this fanning-out process with the other runways, of course, is biting off more than we can chew. But I am directing this to the one runway that is the source of the greatest amount of trouble; I believe Mr. Overbeck said 60 to 70 percent of the planes in his testimony yesterday.

Mr. LEONARD. I believe I interpreted that statement that that was not 60 to 70 percent of the actual departures of the actual O'Hare Airport operations, but that was 70 percent of their particular problem.

Mr. COLLIER. I stand to be corrected, and you could be right.

Did I misquote your statement?

Mr. OVERBECK. The statement was, Mr. Congressman, that 70 percent of the problem of the Park Ridge takeoffs in the area immediately to the south of the expressway is caused by the fanning-out procedures.

It is not that 70 percent of the planes leaving O'Hare take this runway. This would vary tremendously.

Mr. COLLIER. I appreciate your patience, Mr. Leonard. Thank you, Mr. Chairman.

The CHAIRMAN. Mr. Collier has pursued that with rather deliberate consistency, but let me ask you this:

Assuming it is advisable under the competitive system for these schedules to be made all at the same time, and I can understand that, but they do not have to go in all directions at the same time, do they?

In other words, why do you have to pile up going east and west at the same time?

Mr. LEONARD. The competition exists in every direction, but what you may be doing, you may be taking off to the east, but you may be going to a destination in the west.

The CHAIRMAN. I know of a fellow one time who did take off one way and wound up the other way, but I did not know the airline industry was following that principle.

Mr. LEONARD. I believe it is, to the people to the east of the airport, where, if you are taking off to the east, they are indicating also they are affected by the aircraft that are taking off to the east and in their turnaround proceed west.

The CHAIRMAN. That is the reason it seemed to me to be more realistic and practical that flights going west take off, say, at least a few minutes different from the flights going east.

Mr. LEONARD. They would still be taking off from the same runway and going in essentially the same area, within close proximity of the airport.

The CHAIRMAN. Mr. Leonard, I am not sure that we understand each other, and I am not sure that you and Mr. Collier understood each other during this whole thing.

Maybe I missed the point myself, so I guess we had better proceed and go on to the next witness.

I agree with Mr. Collier. It just does not make sense to me to have a dozen airplanes going out to the end of the runway and standing out there, all waiting to get clearance to take off.

Now, I can understand why the flights going from New York, they are competitive, want to get their passengers there first. That is reasonable to me.

But to have them have to leave at the same time to go to New York as they are going to San Francisco and waiting out there and piling up, keeping passengers in the plane, even though you have the schedule back there in the airport to leave at a certain time, I do not get it, and I am like Mr. Collier.

I think it does add to the noise problem, as those things take off one after the other—bingo. I made the comment the other day that there are two things that I have nothing to do with as far as I am personally concerned: One is to try to make rates on common carriers, and the other is to work out the schedule for an airline.

I just think those are two impossible things, as far as I am personally concerned, but the experts seem to get along pretty well with it.

But Mr. Collier was trying to make the point, about which apparently you are not the man to talk to, that there should be some consideration given to piling up these planes leaving airports, going over the same area, one after another, like a flock of ducks going out.

I do not know.

Any further questions?

Mr. HEMPHILL. May I ask a question, Mr. Chairman.

You make the statement on page 2:

> Departing aircraft climb to 2,000 feet above the surface as rapidly as practical.

Dropping down to the next sentence in the next paragraph:

> These procedures produce faster climbs and steeper descents and consequently lower noise levels on the ground.

Now, the Boeing 707 will climb out at about what, 400 feet per minute? On a hot day, she is not going to climb as fast and on a cold day she will climb pretty good?

Mr. LEONARD. Yes, sir.

Mr. HEMPHILL. So we will say 400 feet a minute is about the average on a hot day and about 800 feet a minute, which is stretching it, on a cold day, is that right?

Mr. LEONARD. We can use that average figure, yes, sir.

Mr. HEMPHILL. So from the time he picks his plane up off the runway and starts his gear up and gets to 2,000 feet on a hot day, it is going to be 5 times 400, 5 minutes, is it not?

Mr. LEONARD. Five minutes, yes, sir.

Mr. HEMPHILL. On a cold day, 2½ minutes. And on a hot day, he is doing what, 150 knots, by the time he gets his gear up?

Mr. LEONARD. 150 to 160.

Mr. HEMPHILL. That is 2½ miles a minute, right?

Mr. LEONARD. 2½ a minute.

Mr. HEMPHILL. So even on a cold day, when he is grabbing at 800 feet a minute, he does not get to the 2,000 feet until he is 5 miles beyond the end of the runway, does he?

Mr. LEONARD. That would be correct.

Mr. HEMPHILL. And on a hot day it would be 10 miles beyond the end of the runway, would it not, to get to 2,000 feet?

If he is doing 150 knots, 2½ miles a minute, that is 150 miles an hour. By the time he leaves the end of the runway, after he gets his airplane off of the ground, by the time he got to this marker beacon which is 5 miles east of the runway on runway 9, actually he cannot be but 800 feet, can he, because he is not climbing but 400 feet a minute? In 2 minutes he goes 5 miles. In 2 minutes he cannot climb but 800 feet.

I just want to see if this thing is practical, because this is your testimony.

If my arithmetic is bad, say so.

Mr. LEONARD. Captain Henderson is a jet-qualified pilot, operating out of Chicago.

Mr. HENDERSON. I wonder if I could help you, Mr. Hemphill.

Mr. HEMPHILL. Yes.

Mr. HENDERSON. I think it is extremely difficult to give an average rate of climb for a turbine aircraft over a short period because your rate of climb is increasing every second almost from the time you leave the ground.

By the time you are 100 or 200 feet high, with the gear up, your rate of climb may be only 200 or 300 feet a minute.

Another 30 or 40 seconds later it will be up to 600 or 800 feet a minute. At the end of a minute it may be up to 1,000 feet a minute.

And if it is a jet aircraft, the newer, larger engines, you can have a rate of climb of 2,500 or 3,000 feet a minute after a couple of minutes.

Mr. HEMPHILL. Yes, but the couple of minutes is what they are worrying about. That is what is worrying these people.

Mr. HENDERSON. Well, I was trying to get away from this 5-minute connotation to get to 2,000 feet.

Mr. HEMPHILL. I wasn't trying to pin you down.

If you tell me that a Boeing 707 or a Convair 880 or one of these new birds will grab out at the rate of 1,000 feet a minute before a couple of minutes, I want to know it.

I do not believe it because I do not believe on a hot day she is going to do it.

You have got about 50 tons of fuel and you have it packed and jammed. She is heavy——

Mr. HENDERSON. Any time you talk about rate of climb you must consider the destination of the airplane.

There is a large turbojet aircraft flying from Chicago to the east coast. It might have fuel in the nature of 40,000 pounds on board.

The same airplane, going to the west coast, might have 95,000 or 100,000 pounds.

Mr. HEMPHILL. I said 50 tons. That is about right.

Mr. HENDERSON. And this difference is a tremendous difference in the total weight of the aircraft.

So the performance figures are radically different from the heavy airplane to the light.

Mr. HEMPHILL. Well, I do not want to belabor the point.

What do you climb out at once you get your gear up?

What speed?

Mr. HENDERSON. We use what we call reference speed V–2, plus 10 knots, until we get to 2,000 feet above the ground.

Mr. HEMPHILL. V–2? What is "V–2"?

Mr. HENDERSON. That is the function of the temperature of the air, the weight of the airplane, and ——

Mr. HEMPHILL. Well, that is calculated on a table by your copilot before you leave the ground?

Mr. HENDERSON. Yes.

Mr. HEMPHILL. And he says, "As soon as we get the gear up we are going to establish a climbout rate at a certain speed"?

Mr. HENDERSON. As an example, on a takeoff we could say that V–2 would be 145 knots.

So you would go down the runway and take off. At the time you were coming over the ground, had the gear started up, you would be at about 145 knots.

Then we would pick up another 10 knots, which would be 155 knots, and hold that until we got to 2,000 feet.

Now, that would mean that we were making our original climb at an indicated airspeed of 155 knots.

Now, the best climb speed for that airplane for the rest of your climb to 35,000 feet might be 310 knots.

Mr. HEMPHILL. I understand, but I want to know how far wrong I was in the averages I gave you: 400-foot rate of climb on a hot day and 800-foot on a cold day, and that is why I was asking the questions.

Mr. COLLIER. Will the gentleman yield?

Mr. HEMPHILL. Sure.

Mr. COLLIER. This V–2 that you speak of, as I understand it as a layman, it is the point at which there is no return.

In other words, if there is a power failure up until the plane reaches this point of V–2——

Mr. HENDERSON. No, Mr. Collier, if I may help you.

I believe you have a misunderstanding, if I may help you on it.

Before we start a takeoff we calculate three speeds. We call them V–1 speed, which is the speed you have just described. It is a go-no-go speed. It is the speed on the runway which, if you have a mechanical problem before you reach this speed, you can stop the airplane in the runway.

Mr. COLLIER. Right.

Mr. HENDERSON. If you have this difficulty at or after V–1, you may not be able to stop it on the runway, so you continue the takeoff.

So when we start a takeoff we have three figures in mind, V–1, which is the go-no-go speed; V–R rotate, which is the speed at which we hold the nose up and start to come off the ground, and we call that our rotate speed.

Then the V–2 is the speed that I was talking about with Mr. Hemphill and, as a matter of fact, your acceleration is such that at the time, when you rotate at rotation speed, V–2 may be 10 to 15 knots above that, but by the time the bird comes off the ground you are at V–2 in this position.

Mr. COLLIER. Anytime prior to V–2 is what I said is the point of no return.

Mr. HENDERSON. No.

Mr. COLLIER. In other words, there cannot——

Mr. HENDERSON. V–1, sir.

Mr. COLLIER. Just V–1?

Mr. HENDERSON. Just V–1.

Mr. COLLIER. Thank you, sir.

Mr. ROSTENKOWSKI. Will you yield?

Mr. HEMPHILL. Yes.

Mr. ROSTENKOWSKI. Captain Henderson, we had testimony yesterday that if a plane goes over Lake Michigan and sets all its instruments at 7,000 feet, that this plane, which is a jet now, could glide into the airport at O'Hare Field at a minimum amount of noise; is this true?

Mr. HENDERSON. I think it is possible. You might even say "probable" that this would be true.

I would say almost positively that it would be true if you were the only airplane in the air.

Mr. ROSTENKOWSKI. In other words, with traffic in the air—this is not going to abate any noise.

Mr. HENDERSON. The additional traffic is what compounds this problem. You cannot do it as nicely.

Mr. ROSTENKOWSKI. When you are taking your aircraft off or becoming airborne, how long or how far are you from the end of the runway at takeoff before you reach 2,000 feet?

Mr. HENDERSON. This is a tremendous variable. I have taken off from runway 32 left at O'Hare and crossed the end of the runway at 2,000 feet.

Mr. ROSTENKOWSKI. And this all has to do with the amount of fuel aboard, and the weather.

Mr. HENDERSON. Well, and also the temperature of the air and the headwind.

Mr. ROSTENKOWSKI. On a normal, a given normal flying day, what would you say—the problem that I am looking to here is the zoning problem.

If we are going to authorize or if we are going to have our legislators authorize zoning areas, how far from the airport are we going to have our State legislatures authorize zoned areas in which planes can take off in order to discourage building in the area of single-family dwellings?

Mr. HENDERSON. I am sorry, but I do not believe that I could make a competent or give a competent answer to your question.

Mr. ROSTENKOWSKI. Thank you, Mr. Chairman.

The CHAIRMAN. I wondered myself about why these planes could not get the lift pattern higher and much farther out coming in, but I assume from what you said that the traffic has something to do with that.

Mr. HENDERSON. It has considerable to do with it, Mr. Chairman.

The CHAIRMAN. Well, if the air traffic control boys arranged their program accordingly, they could improve that situation; could they not?

Mr. HENDERSON. Well, the air traffic control boys have a tremendous problem, as you are well aware——

The CHAIRMAN. Well, I want to make this statement right now.

Everybody is talking about the problem that we have. I do not care whether he is a pilot or air traffic control man or a representative of the city or who it is.

Now, if everybody is going to tackle this problem with the idea that it is impossible to solve, we might as well adjourn these hearings and forget about it.

Now, industry, the operators, and everybody, in my judgment, are taking a defeatist attitude toward this thing, and I think it is time that somebody gets a little optimism in him and come to the conclusion that we have not reached a point where all improvements are impossible.

Mr. HENDERSON. Well, Mr. Chairman, I do not believe that we are taking a defeatist attitude.

We have had several specific problems pointed out before this committee in the last 2 days.

We have had other areas around O'Hare Airport that were a problem a year ago which we have licked.

The CHAIRMAN. And you are to be commended for it.

Mr. HENDERSON. And we are continually working on this.

At the present time we are working with the control people at O'Hare Field in order to develop new methods of training, working along the lines that have been suggested here of possibly a higher altitude, and if we can work this out we will certainly do it just as fact as we can.

The CHAIRMAN. And I am convinced that you will do that, but I have seen today an attitude on the part of those who have testified here that when things come up, well, that is not our responsibility, or that is so-and-so, always indicating that "we cannot do anything about it."

Now, I think something can be done about it. Industry and municipalities and the Congress, and this committee, and everybody, if they make up their minds that it can be improved, can keep on improving it.

I do not think it can be done in 1 day or 1 week or 1 month, but Mr. Collier raised the question this morning with Mr. Williams about a 10- or 15-year airport program.

He said they had no authority in such matters. As a matter of fact, I know that they make these agreements with municipalities before an agency can approve an airport or make an improvement on it.

If there is any division or any attitude on the part of those responsible in this field, something can be done.

Let me say this, when the American people get tired of something, and I do not care whether he is a Congressman or an airline pilot or who he is, they are going to do something about it.

And if you just come and go with me, as we did last year, and listen to these Members of Congress who represent the American people, before the Rules Committee, and hear what they said to me when I went to them twice, and that is at their committee, as I did not do it on my own, but I had been there before, and you should hear what they say and the comments they make.

Why, then you might get a little idea that maybe something can be done about this thing.

And I know it is fine, and I am for people carrying on under our traditional system of freedom and freedom to operate, but your own association came to this committee only 4 years ago, when we had the FAA Act in 1958.

They showed us a moving picture show and said, "We are running out of space. We are out of space right now."

That was presented right here in this committee room.

Now, people can do something about these things, and I think we had better develop that attitude, because one of these days you are

going to wake up and find out that somebody is going to get pitched out on his ear over here by the House of Representatives.

We have been trying, in this committee, to get an expert, somebody who is trained in the question of noise, noise tolerance, and so forth, for the last year. And I have gone to every major institution in the United States to try to get someone who is expert in this field.

So far we have not been able to accomplish that objective. I do not blame them for it because there are not too many of them and industry is out after them, and they can pay them a better salary than we can. I do think that it is time that the attitude in the general field changes in this country, on the part of all people having something to do with it, because I am not one of those who is going to turn up here and have the American taxpayer assume the responsibility of any number of billions of dollars in damages because people are permitted to build up around an airport when one starts.

Now, I tell you one thing that has come to my attention, since you are a pilot, and if necessary, I think we can show that it is a matter of fact:

Around certain airports instruments were set up to find out what is the decibel level at a certain place, and the airline pilots maneuvered around and got themselves a little machine of their own and got theirs stationed up there also, and they slowed down until they got past it.

Well, that is all right in America, with people trying to get along and do their job, but still it is defeating the purpose of efforts being made of trying to do something about a problem that is recognized around these municipalities.

It is not going to hurt in Arkansas, I can tell you that, unless something happens that I do not see in the next 50 years, but in New York, Chicago, and Dallas, it is.

I do not want this to be considered as a lecture, but I have heard too much about this business around here, and I think it is time we got down and put our shoulders to the wheel and say we can do something about it.

They could not do anything about it in Long Beach a couple or 3 years ago, but when the plane fell in that schoolyard out there, and we got General Quesada to close down the whole airport, something was done, and you will recall how they hollered and hollered out loud.

Of course, something had to be done about the right-of-way. Well, something was done about it, and it did not take long to improve the situation out there, not only insofar as the commercial operation was concerned, but the military as well.

Thank you very much, gentlemen, for your appearance here and for your contribution to this very tough problem.

Mr. OVERBECK. Mr. Chairman, may I arise to attempt to correct the record?

The CHAIRMAN. Well, we will get to you, sir, as soon as we can. We have other witnesses scheduled and if you will just bear with us for awhile——

Mr. OVERBECK. I have already spoken, sir.

The CHAIRMAN. Yes; if there is anything I said that you wish to reply to right now, I will be glad to hear you.

Mr. OVERBECK. No, sir. It was to correct my own record when I testified, and a misapprehension that I think the record may not be clear on, and it would take just a second.

The CHAIRMAN. Very well, then. That may be done.

Mr. OVERBECK. I am John Overbeck, mayor of Park Ridge.

Questions had been asked to witnesses in respect to who the citizens of Park Ridge or who our committee discussed this matter of noise abatement with, and I believe the record is confused on that score.

The sole purpose of my statement is to clear the record.

We have discussed it with FAA officials. There was some doubt as to that in response to some questions from the floor.

The officials were primarily Mr. Niles and Mr. Hottman.

We have discussed it with the Air Line Pilots Association, and the members of the Air Line Pilots Association, present at nearly all of our meetings, were Mr. Carl Eck and Mr. Ben Busse.

We have discussed it with the ATA. Mr. Leonard, of the ATA, has been present at nearly all of our joint meetings.

The question was asked by Mr. Younger to Mr. Downes whether he ever received any communications from the city of Park Ridge. Mr. Downes replied "No."

In my testimony I had stated that we had approached Mr. Downes in this matter and he did not seem to think that this was within his jurisdiction. They seemed to be inconsistent statements.

Actually, both statements are correct.

We addressed no written communications to Mr. Downes. On September 20, 1960, we did discuss the matter with Mr. Downes and his reply to us was much along the vein of his testimony, that he regarded his jurisdiction, and we think he is right, as being within the confines of the airport, that he had nothing to do with planes once they took off from the airport.

I merely make these statements so that inconsistencies in the record may be corrected.

Thank you, Mr. Chairman.

The CHAIRMAN. Well, Mr. Mayor, if these hearings do not do anything else maybe they will point up one fact that certain people in various groups have responsibilities in this field and if there could be a little degree of cooperation and working together, we might even be able to accomplish something.

Mr. Cram, Mr. Jack R. Cram.

STATEMENT OF JACK R. CRAM, NATIONAL AIRCRAFT NOISE ABATEMENT COUNCIL; ACCOMPANIED BY JOHN TYLER, AEROSPACE INDUSTRIES ASSOCIATION

The CHAIRMAN. Mr. Cram is president of the National Aircraft Noise Abatement Council.

Mr. Cram.

Mr. CRAM. Mr. Chairman, I have with me today, as a technical witness, should any questions on powerplants come up, Mr. John Tyler, who has been furnished to me by my member associations to testify if it is required in this field.

The CHAIRMAN. Mr. Tyler, we are pleased to have you with us.

Mr. TYLER. Thank you.

The CHAIRMAN. Mr. Cram, did we not receive a report from your council or was not a report issued several months ago or maybe a year ago?

Mr. CRAM. We have put out several reports, and we have also put out three manuals which the members of your staff are in possession of.

We also put out, I might say, a biweekly newsletter which exchanges news on noise abatement throughout the country, and you also get that.

The CHAIRMAN. It seems that I have some recollection of Mr. Schenck, a member of this committee, calling to our attention a report issued by the Noise Abatement Council from one of the, I thought, universities out in Ohio.

Mr. CRAM. No——

The CHAIRMAN. That was some time ago. Maybe my memory is unclear on it. I will see about it.

You may proceed with your statement.

Mr. CRAM. Mr. Chairman, with your permission, I would like to suggest that inasmuch as I am going to talk at the national level on what has been done by the three industry associations that support the National Aircraft Noise Abatement Council or NANAC, as I will refer to it from here on, and inasmuch as we are short of time, that I simply summarize my remarks and that the written transcript, which you have, be made a part of the record of the committee.

The CHAIRMAN. It will be inserted in the record at this point.

(Mr. Cram's statement follows:)

STATEMENT OF THE NATIONAL AIRCRAFT NOISE ABATEMENT COUNCIL SUBMITTED BY JACK R. CRAM

Mr. Chairman, my name is Jack R. Cram. We of the National Aircraft Noise Abatement Council appreciate the opportunity to appear before your committee and present what the industry has done on noise abatement. I have been the president of the National Aircraft Noise Abatement Council since its organization, having retired as a brigadier general from the Regular Marine Corps. During my 30 years service, I was qualified as a pilot in jets, helicopters, and piston aircraft.

In the time allotted to the National Aircraft Noise Abatement Council, or NANAC as I will refer to it hereafter, I would like to outline some of the progress that has been made in alleviating the noise problem as it applies to the United States as a whole, with special reference to O'Hare International Airport and its vicinity.

I would first like to talk about the organization of NANAC and its purposes.

Noise is said to be a product of progress, and nowhere is this more true than in the field of aviation. Every advance in aviation design, every increase in aircraft size and speed, has brought with it—in addition to greatly improved safety, performance, and reliability—added sound.

The sound of aviation's progress, however, remained a relatively minor problem until the increasing frequency of the operation of larger, more powerful piston aircraft began to create serious community reactions.

Approximately 3 years ago, as a result of the introduction of jet transport aircraft into the commercial air transport system, it became apparent that coordinated action would be needed to reduce jet noise annoyance. Recognizing this, Stuart Tipton, president of the Air Transport Association of America, which represents over 50 scheduled U.S. airlines, took action early in 1960 to form a national aviation industry group to develop and coordinate a nationwide, industrywide aircraft noise abatement effort. Gen. Orval Cook, president of the Aerospace Industries Association at that time, which represents over 70 manufacturers of aircraft, engines, and equipment, and Clarence Sayen, the then president of the Air Line Pilots Association, which represents the over 14,500 pilots engaged in air transport operations, also clearly recognized the problem and joined with the ATA to form and support the National Aircraft Noise Abatement Council.

They recognized that the air transport industry is a highly interrelated, integrated system with—

Each airport having a direct relationship and responsibility to every other airport;

Each airline to every other airline;

Each pilot to every other pilot; and

Each community to every other community.

They thus designed the program to draw together and coordinate on a national basis the actions of each of these many groups into one industrywide effort.

NANAC's objectives and purposes are—

1. To develop and carry out a national aircraft noise abatement program as may be required from time to time.

2. To encourage the development of new techniques, research, and improvements in methods of operation affecting aircraft noise abatement.

3. To serve as a central source of information and experience and to provide counsel for the membership of local noise abatement organizations, as they may request.

4. To anticipate problems in this area and assist in the development, and organization of local industry noise abatement groups.

5. To provide detailed information regarding aircraft noise abatement matters on a nationwide basis.

6. To serve as a central source of accurate information on aircraft noise abatement.

7. To maintain liaison with appropriate governmental groups.

8. To engage in such other activities as may appear to be necessary or desirable to accomplish the objectives of this organization.

To implement these objectives and to coordinate the national aircraft noise abatement program, NANAC developed three manuals, a "National Aircraft Noise Abatement Program Manual," an "Examples Manual," and a "Community Educational Program Manual," as well as a biweekly newsletter.

To carry out the other objectives of its program, NANAC has, among other things:

1. Conducted a survey of all airports in the United States receiving jet service, including O'Hare International Airport.

2. Surveyed alternate airports where training operations could be conducted and recommended the removal of training from certain airports. O'Hare has no training flights, and hence no problem in that regard.

3. Encouraged expanded and intensified research into the basic causes of jet engine noise by both industry and governmental groups.

4. Assisted in the organization of local industry noise abatement efforts.

5. Collected legal studies on zoning.

NANAC grew out of a recognition by the airlines, the manufacturers and the pilots of community problems involved in aircraft operations and their desire to do something about them on a nationwide scale. Its efforts are designed to supplement the programs of local industry noise abatement groups and supply them with assistance and material that would be otherwise unavailable. It does not conduct local programs or participate in their efforts except in an advisory capacity. NANAC's efforts are conducted in consonance and cooperation with local groups.

Before going into what the various segments of the industry have done to alleviate the noise problem, I would like to briefly discuss noise and its propagation. Controlling or abating aircraft noise is an extremely difficult problem. Even predicting the level of noise a given sound will create, in a given area, at a given time is as complicated as predicting the weather. Actually, the weather plays an important part in the way sound travels. Wind and temperature gradients bend the path of sound; turbulence and humidity cause scattering and absorption of sound; cloud cover can reflect sound back to earth.

To understand sound propagation, we must first consider the way sound travels from its source. Generally, sound can be said to travel according to—

1. Its acoustical power.

2. Its distribution in space.

3. Its frequency or tone.

The acoustical power of a sound is the strength of its loudness. This is measured by the pressure changes in the air caused by the sound. These changes can be measured in "decibels." In simple terms, a decibel is the smallest differ-

ence in the loudness of a sound that can ordinarily be detected by the human ear. The decibel is simply a logarithmic unit that expresses the ratio between two sound pressures. This ratio is such that if two 100 decibel sounds are added together, the new sound intensity is only 103 decibels and not 200 as might be supposed.

The distribution in space decreases the level of sound at the rate of 6 decibels for each doubling of the distance it travels.

The frequency or tone of a sound determines its ability to carry and penetrate. High frequency sounds are quickly attenuated by distance and more easily blocked. Low frequency sounds carry over longer distances and can only be blocked by heavy soundproofing.

So in considering any noise annoyance problem, it is more than the decibel reading in loudness, it also includes frequency and penetrating power.

All noise problems break down into three major component parts:

1. The source which radiates the sound.
2. The path along which the sound travels.
3. The receiver of the sound.

These parts must be considered individually when attempting to control or alleviate individual noise problems, but they must be treated as a system when dealing with an area noise problem.

The general areas of industry responsibility also follow these three divisions. These are:

1. Source (aircraft and engines): Manufacturers and pilots.
2. Path (airplane): Airlines and pilots and FAA.
3. Receiver (airport communities): Airports and local governments.

Now, let's consider each segment of the industry and what each has done to alleviate the noise problem. You will note that I say alleviate rather than eliminate. With the present state of the art, as long as we have internal combustion engines, we will have noise. Even if noise can't be completely eliminated, the industry has recognized that a coordinated effort of all segments involved in the problem can reduce it. As you will note, each group has made certain basic contributions to the noise reduction program of NANAC.

First, let's examine the aerospace industries—the manufacturers:

Manufacturers have long been aware of the community problems created by aircraft noise particularly from military aircraft, which of necessity use unsuppressed engines. The first civil jet transport was a Boeing development which was designed at a time when the only engines available were those primarily developed for military purposes. However, it was recognized that these new aircraft would create major community noise annoyance problems if the engines were used unsuppressed. The manufacturers all launched intensive research programs into the basic causes of jet engine noise and methods of suppression. To date, these programs have produced:

1. Sound suppressors which produce an average 9 decibel reduction in the sound level of a jet engine on takeoff. Further appreciable reductions of sound by this method cannot be attained without inflicting prohibitive power losses on the engine. All commercial turbojets serving O'Hare are equipped with noise suppressors.

The research and development program required to produce these suppressors cost the manufacturers in excess of $50 million.

2. Turbofan engines which are now coming into use are quieter per pound of thrust than the regular turbojet during takeoff operations. However, they do produce a high frequency noise which is more noticeable on the approaches. At the present time, there are several airlines operating into O'Hare with turbofan engines.

3. Hush kits have been developed which modify several parts of the turbofan engine and produce a reduction in their high frequency noise output. Some airlines are now retrofitting their turbofan engines with these kits at a cost of $48,000 per engine. Hush kits have been installed on many of the turbofan engines operating into O'Hare.

4. The resonator cowl and the sonic barrier inlet, which also give promise of accomplishing further reductions in high frequency noise, are in development and test stages by the engine manufacturers.

Research in other areas is also being conducted.

In addition, the manufacturers have given their full support and assistance to the National Aircraft Noise Abatement Council in the solution of aircraft noise abatement problems.

Next, let's consider what ATA and the airlines have contributed: Noise control along its path falls primarily upon the airlines and pilots, and FAA. The airlines are aware of this and have taken a considerable number of actions to fulfill their responsibility. To date, these include:

1. Use of noise suppressors on civil jet aircraft. As of January 1962 the U.S. air carriers were operating 325 pure jets. Equipping the turbojet type aircraft including all that serve O'Hare with suppressors required an investment of over $73 million by the airlines. This is in addition to the $50 million development cost by the manufacturers.

2 Accepting substantial operating losses to use suppressors: Using suppressors cost the carriers an average of $10,000 per tubojet-powered aircraft per month due to loss of speed, increased weight and drag, loss of revenue loads, and added fuel requirements. With the present number of turbojets in service, not counting the fanjets, these costs total nearly $36 million per year. This amount increases monthly as more and more jets enter service.

3. Removing training activities from terminal areas with noise problems when practicable: This has necessitated conducting training at terminals other than normal bases of operation. This has greatly increased the cost of training because of added time required to fly to and from these areas and the resulting extensive rescheduling of personnel and equipment. O'Hare has no training activity.

4. Adopting NANAC and FAA technical noise abatement operating procedures as part of their operations and training manuals such as those in effect at O'Hare has required a considerable amount of retraining of air crews. This is also costly.

5. Retrofitting aircraft presently powered with turbojet engines with the new and more powerful turbofan engines requires an additional investment of approximately $1 million for each aircraft. Now, a few words concerning the airline pilots' contribution to noise abatement.

Noise control along its path and in some degree at its source falls primarily upon the airline pilots. Pilots have played a leading role in the development of all noise abatement procedures and techniques, both locally and nationally. Their judgment and guidance have also insured that safety of operations has been considered in each case. Their cooperation has been outstanding.

As we outlined earlier, our approach to the noise problem has been:

1. Implement flight procedures to give immediate relief. This has been done.

2. Work closely with the FAA, NASA, and industry to effect further reduction of noise in present and future engines. The progress in this field has been reported by the FAA.

3. Our present program is the use of land around airports. We are currently gathering information from airports, planning commissions, the FAA and the FHA throughout the country in preparation for publishing a fourth manual. This will be a guide to airport planners on the use of land around airports in avoiding noise problems. We consider that in the critical noise areas that the proper use of land is the ultimate solution to the problem.

I would like to point out a most important factor in the progress of the national aircraft noise abatement program. NANAC was a voluntary organization set up by the three large associations of the industry. They have considered that voluntary procedures consistent with safety should be the goal of NANAC. In working out these procedures and securing the approval of the Federal Aviation Agency we have had outstanding cooperation at all levels of the FAA. We anticipate a continuation of this excellent relationship.

In conclusion, I'd just like to say we do not claim that the above actions have eliminated the noise problem, but we do believe they have materially reduced it. I can assure that the entire aviation industry is taking the aircraft noise problem very seriously in Chicago and throughout the country, and that they—and we—intend to take every action consistent with safety and with the pursuit of our aviation goals.

Our problems are complex and difficult, but we are convinced that all of us—the airlines, the manufacturers, the pilots, the airports, the Federal, State and local governments, and the citizens who live in these noise sensitive areas—can, by mutual effort, mutual respect, and mutual cooperation, eventually evolve the solutions we all desire and must have.

Thank you for the opportunity to present the views of the National Aircraft Noise Abatement Council.

Mr. CRAM. I would like to make one correction to the written transcript.

On page 2, the second sentence, the second paragraph, I would like to change it to read, instead of "over 50" the figure "44". Delete "over 50" and put in place of it "44".

The National Aircraft Noise Abatement Council is a voluntary organization, and it was organized by the Air Transport Association, the Airline Pilots Association, and the Aerospace Industries Association.

They realized very early, some 3 years ago, that we had a real noise problem coming up in many of these localities where we had jet transportation going in.

This was an effort on their part to set up an organization that could coordinate and pass information on noise abatement throughout the United States.

I want to make it clear, we work at the national level. We work with local communities or local organizations, and we try to help them. We do not go into any organization or any locality unless we are asked. But we are very glad to assist when there is a need for it.

We make recommendations. What we have actually done is to collect information throughout the United States where they have noise problems, on what they have done. Where we find a noise measure being implemented in one area that we think might help some other area, we pass that on.

This is done in our news letter. We also felt that many communities that develop a noise problem might not know just how to organize for it. We do feel that the noise problem is an all hands problem. Everybody that is involved in it must cooperate and work together if we are going to get an acceptable solution to it.

So, as I mentioned earlier we put out three manuals. One is a "Program Manual" which simply outlines the organization procedures for a group that is working together at the local level. We took certain examples from areas in the United States where they had earlier noise problems and put them into a second manual, called an "Examples Manual." This is a guide to these communities in case they needed to use this type of material.

Last year we put out a third manual called a "Community Education Manual."

We feel that much of the trouble in noise problems has been a lack of understanding between the communities and the industry regarding what the industry has done. We consider that these communities are entitled to know the effort that has and is being made by the industry.

Now, in going into my report you will notice that we set out in three separate sections the work of the three associations and what they have done. I think it is self-evident when you read these sections, that they have made a distinct contribution in each case.

I think the $50 million alone, that the manufacturers spent on noise suppressors prior to putting these jets into operation, shows the early interest that was manifest in doing something about the noise problem on the part of the manufacturers.

Again, we have $73 million that it cost the airlines to equip the turbojets with suppressors. And still, in addition to that, we have

a continuing expense of $37 million a year, and this is based on 325 operating turbojet airplanes today, but increase yearly. This is the cost of carrying these suppressors, in reduced payload, increased drag, lack of performance; this is an increasing amount each year.

KANAC has, to date, proceeded along three lines. We felt that there were three areas where we could help in noise abatement work.

The first was to set up procedures. This was done initially because it was the quickest way of giving these noise-irritated people some sort of relief.

These are the same procedures that were referred to by Captain Bechtold when he was testifying this morning.

We think the pilots have done an outstanding job. They had the while noise-abatement load thrown on them at the beginning. They went just as far as they felt they could go safely in trying to fly with these procedures.

The second thing we have tried to do is to get into the research end with the manufacturers and with the various agencies of the Federal Government—the reduction of noise inside the engine. As you heard this morning, the FAA has several projects that are in progress at this time, and I do think that we are going to get some answers from them. How good they will be we do not know at this time. But we certainly feel that this is an area that should be explored to the fullest, to determine whether there was a reduction in the noise of engines that could be effected internally.

Now, the last phase of our program, and the one on which we are working this year, is the use of land around airports. We feel that the ultimate solution to these very critical noise areas is the proper use of land around the airports.

I think it has been adequately brought out by witnesses ahead of me and by the committee that there are things that can be done in this area which will help the noise problem.

I would like to say, in summary, that we do not think that all of the things that we have advocated at the national level and passed to noise sensitive areas are going to solve this problem. We have not said that it would, but we do feel that it will alleviate the conditions in many of these communities that have critical noise problems.

I would like to conclude by actually expressing, as we did in the written statement, our feeling on this whole problem.

We feel that the problems are complex and very difficult, but we are convinced that all of us—and I am talking about the airlines, the manufacturers, the pilots, the airport operators, the Federal, State, and local governments, and the citizens who live in these noise-sensitive areas—can, by mutual effort, mutual respect, and mutual cooperation, eventually evolve the solutions that we all desire and that we must have.

Thank you very much, Mr. Chairman.

The CHAIRMAN. Any questions?

Mr. YOUNGER. Just one.

On page 10, as item 3, "removing training activities from terminal areas with noise problems when practicable."

And you say that O'Hare has no training activity. Why?

Mr. CRAM. Well, first—I think I should define what we are talking about in "training activity." We are talking about basic training, and

it is very similar to the problem that you had, Congressman Younger, there in San Francisco. Basic training was conducted on many of these noise-sensitive airports 2 years ago. As you know, we removed all of that training from San Francisco and the airlines, I think, are entitled to the full credit. They flew as far as Fresno, 140 miles, back and forth, and paid some pretty stiff fees to conduct this training.

Mr. YOUNGER. Over to Nevada, in fact, some of them.

Mr. CRAM. This is correct, sir. Even to Honolulu.

The majority of it was done as close as they could to San Francisco, and this was at Fresno. The thing that they were willing to do was to spend this extra money and the time of the crews, which meant rescheduling a lot of these airplanes to do this training job at outlying fields.

Then we worked with other airports, and when we saw noise problems coming, we tried to avoid this training problem by removing it early. We did not wish to go through what we experienced in San Francisco and Los Angeles again if it could be avoided.

So, actually, there is no basic training as such, conducted at O'Hare.

Now, there is certain required training that you cannot avoid, and this comes as a result of Federal Aviation Agency requirements, that you do certain types of training on the airport that you are operating from, and this training——

Mr. YOUNGER. Qualifying——

Mr. CRAM. That is qualifying training; yes, sir.

This type is done at O'Hare. Does that clarify your question?

Mr. YOUNGER. Yes. That is all, Mr. Chairman.

The CHAIRMAN. Mr. Hemphill?

Mr. HEMPHILL. No questions. No, thank you.

The CHAIRMAN. Mr. Collier.

Mr. COLLIER. Now, three questions, if I may, Mr. Chairman.

No. one, Mr. Cram, as one who is considered an expert in this field, and with the knowldege of the problem with which we are dealing, would it be your opinion that Government perhaps had better look into the feasibility and the need for an agency to deal with this specific problem of noise abatement as it is related to the aircraft industry?

Mr. CRAM. First, I should say that there are not too many really critical noise areas in the United States today, as you consider them.

Mr. COLLIER. Today?

Mr. CRAM. That is right, today. I think the Federal Aviation Agency, as it was brought out this morning, has set up an organization, with a man in the Administrator's office here in Washington, in charge of noise. He coordinates noise throughout the country. Then in the case of New York, as they specified, they have set up a noise-abatement officer up there that has worked in the New York area.

I think that where there is a need for this sort of recognition of noise problems, the FAA has the mechanics right now to handle it.

I do not think I can go beyond that statement, because this is a problem that the FAA, who is charged with this responsibility has very satisfactorily coordinated with safety.

Mr. COLLIER. Yes. The FAA, however, has taken the position that this is secondary to their prime purpose which is dealing with the safety operations, etcetera, of aircraft.

Mr. CRAM. Well, I think it should be.

Mr. COLLIER. I do, too, but I——

Mr. CRAM. I think you will agree that safety comes first, and we in NANAC feel the same way.

Mr. COLLIER. Yes, I recognize this, too, and this is what prompts my question.

Mr. CRAM. Yes.

Mr. COLLIER. If this is, in fact, their prime function, and I argue not with it, then why does the prime function of some other agency come in to deal with this other problem?

Mr. CRAM. Well, I would think that a question like you have asked me is one of the questions that your committee would determine after you have heard all of the evidence, and I think there are many, many facets to it. It is very difficult for a person not having all the facts, to make logical determination.

Mr. COLLIER. I have made no determination. I am just seeking some advice for the record, toward the end of making a determination.

One other thing, when we talk of noise decibels, is it not true that the pitch of these noises, rather than necessarily the decibel count, determines the degree of disturbance that it causes?

Mr. CRAM. The two are related, let's say.

A decibel, as I pointed out in my written narrative there, is a measurement of sound pressure level.

Now, this does not necessarily measure the irritation to the individual who is listening to the sound. The pitch or frequency we are talking about—whether it is a low-frequency sound or a high-frequency sound, has a definite effect on how the individual reacts to the noise, and the two are related.

If you get a high-pressure level and high frequency combined, you can get a very irritating noise.

Mr. COLLIER. Thanks very much, Mr. Chairman.

The CHAIRMAN. Mr. Devine?

Mr. DEVINE. Thank you, Mr. Chairman.

Mr. Cram, do you not find that there has been a very high degree of cooperation by the airlines in installing highly expensive devices, such as suppressors, resonators, hush kits, and so forth?

Mr. CRAM. This is absolutely true.

They have gone all out to try to put these in as soon as they found they had the problem.

Mr. DEVINE. Up to a point where economics enters into it?

Mr. CRAM. There are certain things, as you know, and I point them out in my written statement when you get to a certain point in the reduction of noise that it just is not practical to go any further because of power losses.

Mr. DEVINE. That is all, Mr. Chairman.

The CHAIRMAN. Mr. Rostenkowski.

Mr. ROSTENKOWSKI. You mentioned the words "land use" in your testimony, Mr. Cram.

Mr. CRAM. Yes, sir.

Mr. ROSTENKOWSKI. Are you referring, in the usage of this word, to zoning immediately around the area of the airport?

Mr. CRAM. We are concerned with the zoning and the recognition of the noise problem in zoning and land use.

Now, we have had zoning for years. It goes back to 1952 in the Doolittle report, where they laid out certain criteria, as you know.

Mr. ROSTENKOWSKI. Well, according to the testimony that we received this morning and yesterday, O'Hare is somewhat a model airport after this Doolittle report, and there was testimony earlier this afternoon that the end of the runway is a half mile from the end of the airport at O'Hare.

Mr. CRAM. That is right.

Mr. ROSTENKOWSKI. Now, is it not true that in the State of Illinois, over and above the county zoning authority, there is an authority in the State, through an act of the legislature, whereby they would have to apply to the State for a permit to build in the areas surrounding the airport, superceding the airport or the county authority?

Are you aware of that?

Mr. CRAM. I am not familiar in detail with what the State of Illinois requires. It is nearly impossible to keep track of all of the States throughout the country.

Mr. ROSTENKOWSKI. Mr. Cram, you are somewhat an authority on problems that exist in noise surrounding airports.

What would you suggest the zoning authority do with respect to the distance from the airport to a residential area?

I mean, what area or what distance would you suggest from the end of an airport to a residential area?

Mr. CRAM. I am afraid I would have to say this: What you are asking for is an answer that we do not have today. As you recall, Mr. Williams' testimony this morning, in his testimony he talked about several projects that the FAA have in the process of being developed right now, and one of them has to do with the very problem that you are talking about.

That is, what area is affected by each one of these airplanes when it takes off or lands on an airport, and what is the area beyond the end of the runway that should be protected?

This is the very thing I think you want. Right?

Mr. ROSTENKOWSKI. That is right.

Mr. CRAM. This is being studied right now, and I think Mr. Williams gave you a date of October, as I recall, when this report will be available. But it is a question that none of us know today. It is a very good question and one we need to know the answer to.

Mr. ROSTENKOWSKI. So that is as far as you can go to find out the answer?

Mr. CRAM. It is coming up and should be available, I would say to you, the 1st of November, from what Mr. Williams said this morning.

Mr. ROSTENKOWSKI. Thank you, Mr. Chairman.

The CHAIRMAN. I have read over your statement with a great deal of interest, and I have also read your paragraph on acoustical power and the definition of "decibel."

I would not try to indicate that I know what it is, but I know it must have something to do with noise. But I do understand something about your discussion of sound suppressors.

I was interested in your statement that all commercial turbojets serving O'Hare are equipped with noise suppressors.

Mr. CRAM. Yes, sir.

The CHAIRMAN. I wonder if that is generally known in Chicago?

Mr. CRAM. Well, I really do not know how much it has been publicized there. We have put out, as you saw——

The CHAIRMAN. Let me ask you boys from Chicago. Do you know about this?

Mr. ROSTENKOWSKI. No, sir.

The CHAIRMAN. This is very interesting information.

If a little public relations help could be carried on it might be helpful.

Mr. CRAM. Yes, sir. Mr. Chairman, I think you have a copy of this folder.

The CHAIRMAN. Yes, we have copies of it.

Mr. CRAM. This is one of the folders that we did put out very early in the development of our organization to try to tell the story of what the industry has done, and it gives the people some idea of the cost. This very thing that you are talking about is a part of this folder.

We felt that there would be two areas where we needed to tell the story. One was to the people around these airports, to give them some idea of what the industry is trying to do on noise abatement.

Secondly, we have a lot of people who work for us in the industry who were not too well informed, and yet, because they worked at the airport, they were considered experts.

The CHAIRMAN. Why do you not have your newspapers carry a story on it?

Why do you not have your television stations have a discussion over them, so the people can be informed on what is going on?

I think people generally are reasonable, and I think if they know that somebody is actually doing something they ordinarily are willing to go along. That is the way I find it, but this is an interesting statement that you have.

I doubt if any of the general public know that this has actually happened especially at a cost which you say, in your statement here, to the manufacturer in excess of $50 million.

It seems to me that it would be very interesting information among the public.

Mr. CRAM. These have been circulated, Mr. Chairman, to all of the noise critical areas. They have been distributed to the Congressmen in these areas.

I think you were not here yesterday morning——

The CHAIRMAN. I am sorry I could not be here.

Mr. CRAM. When Mr. Pucinski pointed out that he had used these, and he was one of the Congressmen who asked us for a supply of these. I think, Congressman Younger, we brought them over to you, and I know you made them available to the people in the San Francisco area.

This is the thing that we tried to do, that is, to get the Congressmen who did have noise problems in their particular districts aware of the folder, and also to make the circulation as widespread as we could in these critical noise areas.

The CHAIRMAN. What is a turbofan engine?

Mr. CRAM. Well, I am going to ask Mr. Tyler. He is an expert in this whole field.

Mr. TYLER. When the first generation of jet aircraft were built the feeling of the general public was that the noise problem would be primarily one of exhaust noise.

And it was felt that the military airplanes, which had operated, using afterburners, and that sort of thing—when people heard these take off from military bases they were not only concerned but alarmed and frightened at the high noise level.

Therefore, with the advent of turbojet aircraft in the commercial service the aircraft engine industry felt that something more basic than putting a suppressor on an engine was required.

The development of a turbofan engine is a basic change in the engine type which reduces the velocity of the jet. This is the basic reason for noise.

The noise does not come from the engine itself but from the mixing of the jet exhaust wake in the atmosphere behind the engine, and the noise produced by mixing process is a direct function of the velocity of the wake.

Now, a fan engine takes energy from the primary exhaust and puts it into a fan which blows air rearward at a lower velocity than the primary exhaust.

So that the net result is a considerable reduction in noise from the engine as a whole.

And when the turbofan engine was introduced into service, about a year and a half ago, the noise produced on takeoff was reduced to about 10 decibels.

The CHAIRMAN. Does it reduce the power?

Mr. TYLER. No. As a matter of fact, the power is increased by that 50 percent.

The CHAIRMAN. That is interesting. Maybe you had better put another fan on it.

Mr. TYLER. Well, as you may be aware, several of the airlines are now converting their turbojet engines to turbofan engines, and the reason is that it produces so much less noise as well as producing more power.

Mr. COLLIER. Mr. Chairman?

The CHAIRMAN. Yes?

Mr. COLLIER. I remember, I might say, Mr. Cram, of receiving this particular little folder in my office along about the 1st of February, as I recall.

But when you say "we are not aware of the noise suppressor" even from this folder—and I criticize not this—I would not know whether from the verbiage that it is in effect on all aircraft, any part of any craft, and as of now, I do not know this.

In other words, I might ask this question: Are the suppressors on all aircraft?

Mr. CRAM. Well, they are actually not on all aircraft because those equipped with the turbofan engines, that have just been described, due to the reduction in noise and the reduction of the velocity, the exhaust does not need a suppressor.

So it is only the turbojets or the original jet-type engine and not the turbofan that have suppressors.

This is why we cannot make a specific statement and say that they apply to all engines, but actually they have been compensated for by the design in the turbofan engine.

Mr. COLLIER. All right. Now, they are not needed and not used on turbofan engines?

Mr. CRAM. That is right, sir.

Mr. COLLIER. Well, we have got that group out of the way.

What percentage of other aircraft are these suppressors used on?

Mr. CRAM. On all the turbojets—on all the other jet engines that are not fans.

Wouldn't that be correct?

Mr. TYLER. That is correct.

Mr. CRAM. They are used today, and they came out originally on all jet aircraft. Then the fans were introduced and this made part of the engines that did not need suppressors and, as a result, they are not on the fan engines.

Mr. COLLIER. I would not know that from this.

Mr. CRAM. Well, it is very difficult to put it in this very concise space, and what we did was express it in dollars and cents, rather than differentiate between engines.

Mr. COLLIER. Thank you.

Mr. HEMPHILL. Mr. Chairman, may I ask a question?

The CHAIRMAN. Mr. Hemphill.

Mr. HEMPHILL. In this connection, do you not have a hush kit also?

Mr. CRAM. The hush kit—maybe I should again let Mr. Tyler talk about that, because he is the expert.

Mr. TYLER. When the turbofan engine was first introduced the exhaust noise was reduced so much that the inlet noise became more objectionable in that the background noise had been eliminated.

Now, the inlet noise is of a different character. It is what we call "discrete frequency."

Mr. HEMPHILL. It is a scream, is it not?

Mr. TYLER. It is a scream.

Mr. HEMPHILL. Yes, like on the jet Electra, and also on a Viscount. That is what you call it?

Mr. TYLER. Now, when the exhaust noise was reduced and the intake noise became critical then the engine manufacturers went to work to make reductions in the inlet noise, and this so-called "hush kit" was a set of parts that could be installed on engines already delivered to reduce the inlet noise.

Mr. HEMPHILL. And it would reduce the noise but not reduce the power?

Mr. TYLER. That is right.

Mr. HEMPHILL. And you speak of a turbofan. Actually you have got a big impeller inside there and that is why you call it a fan?

Mr. TYLER. That is right.

Mr. HEMPHILL. And, actually, that speeds up the compression. Right?

Mr. TYLER. Right.

Mr. HEMPHILL. But once it gets to the exhaust it really slows down.

Mr. TYLER. Primarily the turbofan. The fan part has a dual discharge. Part of the air goes through the engine and part of the air goes directly outside.

Mr. HEMPHILL. Thank you very much.

Mr. DEVINE. Mr. Chairman?

The CHAIRMAN. Yes? Could I say just this: I was going to comment on your statement. However, speaking of the turbofan, it does produce a high frequency noise which is more noticeable on the approaches.

Evidently they must have them on all of these planes that you just mentioned a moment ago?

Mr. HEMPHILL. The Viscounts?

The CHAIRMAN. They must have them on all Viscounts, the way they whistle when they come in.

Mr. HEMPHILL. Well, you still have the impact of the air on the front of the engine regardless of whether you pull the charges back or not, because you are meeting your slipstream or your airstream at 140 or 150 knots or whatever they come in at.

So you do not reduce the speed and actually the impact of the air is what causes the scream, and it is either caused by one of two things, either by the airplane going forward in the air or by the power which pulls the air through.

Is that not right?

Mr. TYLER. Well, it is the speed of the rotor in the compressors breaking the air.

As you probably remember, this scream is quite noticeable under taxi conditions.

Mr. HEMPHILL. Yes.

Mr. TYLER. Where the engine is turning relatively slowly.

The CHAIRMAN. Mr. Devine?

Mr. DEVINE. I do not understand these engines either internally or from the outside, but in order to help us identify some of the aircraft engines, would it be a turbojet or fan on, say, the Caravel?

Mr. TYLER. Turbojet.

Mr. DEVINE. And the Electra?

Mr. TYLER. Turboprop.

Mr. DEVINE. That is a third category?

Mr. TYLER. That is a third category.

Mr. DEVINE. And your DC–8?

Mr. TYLER. Your original DC–8's were turbojets and the next ones were turbofans.

Turbofans are now on the current models of DC–8's and 707's.

Mr. DEVINE. They are going to that more and more?

Mr. TYLER. There are no turbojet engines on order. All new airplanes will have turbofan engines.

The CHAIRMAN. What is that now?

Mr. TYLER. There are no turbojet engines for transports on order. All new airplanes will be turbofan engines, which will have this 10 decibels of reduction due to a lower velocity in exhaust.

The CHAIRMAN. What companies are making these?

Mr. TYLER. Well, Boeing and Douglas produce the largest number of transport airplanes, the 707 and the DC–8.

The new C–141——

The CHAIRMAN. I am talking about the engines now. I am not talking about the planes.

Mr. TYLER. Pratt & Whitney Aircraft and GE sold turbojet engines for the 880 and the 990 will have turbofans.

The CHAIRMAN. I would have been a little disappointed if you had not said Pratt & Whitney. I expect Pratt & Whitney would have been, too.

Mr. DEVINE. I wanted to clarify the Viscount.

Which does that carry?

Mr. TYLER. That is a turboprop.

Mr. DEVINE. And the 880 and the 990?

Mr. TYLER. The 880 is a turbojet and the 990 is a turbofan.

Mr. DEVINE. Thank you, sir.

The CHAIRMAN. Mr. Tyler, to what extent, if any, has engine design been carried forward with the notion of the noise alleviation being present in the design from the beginning?

Mr. TYLER. Well, as you probably know, the FAA has given contracts to several manufacturers in connection with the development of engines for the supersonic transport.

Now, the supersonic transport engine development is a pretty broad problem, and all of the design know-how, which is developed in this category, is directly applicable to any other transport engine.

And in this study the whole range of engines is being considered from a noise standpoint. It is anticipated that noise will be a critical factor in the supersonic transport if and when we ever get one and, therefore, this is being taken into consideration in the basic design, and may have an important bearing on the selection of the engine type.

That is, in other words, whether it be turbojet, turbofan, or some other design and, as a matter of fact, turbofan describes a general category in which the bypass ratio or amount of air going through the fan can be varied over wide ranges with respect to the amount of air that goes through the jet.

And here you have the possibility of making design compromises in favor of noise.

The CHAIRMAN. Thank you very much, Mr. Cram, for your appearance here and, Mr. Tyler, for your testimony.

Mr. CRAM. Well, we certainly appreciated the opportunity to appear before your committee, Mr. Chairman.

Thank you.

Mr. TYLER. Thank you.

The CHAIRMAN. We will now hear Mr. E. Thomas Burnard, representing the Airport Operators Council.

STATEMENT OF E. THOMAS BURNARD, AIRPORT OPERATORS COUNCIL

The CHAIRMAN. Mr. Burnard, will you identify yourself for the record, and then you may proceed?

I believe you do not have a prepared statement.

Mr. BURNARD. That is correct, sir.

My name is E. T. Burnard. I am the executive vice president of the Airport Operators Council.

I do not have a prepared statement. We had understood that this particular hearing was going to be limited to the local situation in Chicago, and had not been invited to present testimony here.

However, I have sat through most of the hearings the last 2 days and feel that there are several matters that have been put in the record on which we can be helpful by a clarifying statement which we will be glad to furnish.

The principle area, I think, deals with some references to land use zoning. This is not an area which has as much promise, in the eyes of many airport people, as some of the advocates of this method suggest. It is a very complicated type of thing.

And I think there is also some confusion between the height restriction type of zoning and land use zoning, and we would endeavor to clarify this, to the best of our ability, in a statement if we have permission to file a statement at a later date.

Thank you.

Mr. ROSTENKOWSKI (presiding). Does that conclude your statement?

Mr. BURNARD. Yes.

Mr. ROSTENKOWSKI. Just a minute, Mr. Burnard.

Any questions?

Mr. HEMPHILL. No questions.

Mr. YOUNGER. No questions.

Mr. ROSTENKOWSKI. I think Chairman Harris is interested in asking a few questions of you, Mr. Burnard.

Will the clerk go out and get the chairman?

Mr. Burnard, while we are waiting for the chairman, maybe you can help me. We are concerned with O'Hare in the Chicago area, we are quite proud of it because it has been somewhat of a model airport after the Doolittle Commission, we felt that we were doing everything humanly possible with respect to containing noise within that airport, on the ground.

Now, when you talk about land use and you talk about zoning, what frightens me is how much authority are we going to invest in a zoning board, and how far will this authority extend?

If people in Park Ridge, if people 6 and 10 miles away from the airport in a glidepath are having trouble with noise, then is this the area in which we should invest authority in a zoning airport board or should their authority extend this far?

These, I think, pretty much concern or would concern any municipality.

Mr. BURNARD. Mr. Chairman, that is one of the greatest concerns of the public agencies which own and operate airports.

It is, first of all, a jurisdictional problem which is difficult of solution in most areas and perhaps impossible of solution in many areas.

In other words, the airport itself is owned and operated by one political jurisdiction, and the surrounding area is operated by one or more different political jurisdictions.

The areas to be zoned are almost impossible of defining. I think the previous witness mentioned that the FAA has a contract—I think it is for about $100,000—to determine, among other things, just how far out noise is a problem or is likely to be a problem.

And that is one of the great difficulties from the airport operators viewpoint, of determining just how far out noise can be a problem.

Let me illustrate to this extent, that O'Hare, like many other airports in this country, has what is referred to frequently as the Doolittle clear zones.

These were acquired years ago—back when the FAA said that the maximum runway length of an airport should be 8,400 feet.

In 1958 the FAA, then the CAA, changed that requirement only 1 month before the jets came into service when they raised it to 10,500 feet as the maximum requirement for jet operations.

So that many airports throughout the country that had acquired clear zones based upon an 8,400 foot runway, lost them by the stroke of a pen at the FAA.

Consequently, when they did lose them there was a certain amount of buffer that was lost, in addition. That is one type of problem that the airport operator cannot predict.

He does not know what the FAA is going to do. It is almost impossible to get information from the airlines or the manufacturers as to what kind or degree of noise future aircraft are going to make.

Thus we have no parameters at the present time for knowing how far to zone, even if we could zone, and usually we cannot zone.

Mr. COLLIER. Will the gentleman yield?

Mr. ROSTENKOWSKI. Yes.

Mr. COLLIER. With regard to the matter of zoning and a particular study that is being made to determine the distances from an airport, that noise is a major problem, obviously we all know it is a degree of a problem in some areas and a lesser degree in others.

But as far as the study is concerned, I might say that this might develop the distance from the airport that noise would be a problem to some degree. The problem that concerns us is what is going to be done about that.

I think agencies of government today and Congress, for that matter, must have about 2,000 studies of one nature or another. In fact, I have observed, and I am sure the gentleman has, and I am not asking him to agree with me at this point, that sometimes the nicest way to get rid of a problem is to make a study, and this is often par for the course around here.

And so the study may be very helpful to us at some future time in establishing new airport facilities, but it is not going to help the problem with which we are faced today at all, I am afraid, and particularly the problem as it exists in O'Hare International Airport.

Mr. BURNARD. Well, I agree, Congressman, that many real problems are buried in studies and we, as a group, are certainly interested in seeing a real solution to this problem although we recognize that a certain amount of study is necessary.

We believe that positive actions to alleviate noise can be taken even today without further study.

But the studies will be very helpful, I think, in detailing or sophisticating some of the things that can be done.

Mr. COLLIER. I think you are right, sir, except that beyond that study is the question of the jurisdiction or the right of the local community to zone for any type of operation, be it from an airport or for commercial zoning, in the best interests of the people of that community.

And so that the study itself might be helpful to you, it might be, but it would certainly not be binding upon any municipality as it proceeded to zone in the interest of its residents.

Mr. BURNARD. That is correct, sir.

The CHAIRMAN. Off the record.

(Discussion off the record.)

The CHAIRMAN. Mr. Burnard, thank you very much for your statement.

(The following statement was subsequently received from Mr. Burnard:)

STATEMENT OF THE AIRPORT OPERATORS COUNCIL

The present hearing was initiated as a hearing upon aircraft noise at a particular airport. However, because of the nature of the testimony presented it has taken on the aspects of a general hearing upon the aircraft noise problem, nationwide. In view of this fact, and in view of the suggestions made by some witnesses that "airport zoning" by airport operators and local governments constitutes a panacea for the elimination of aircraft noise annoyance, the Airport Operators Council wishes to call attention to certain important considerations lest they be overlooked or minimized.

THE CAUSE OF THE AIRCRAFT NOISE PROBLEM

Because of repeated suggestions by others that the aircraft noise problem is a local problem, we believe it is necessary to emphasize that the aircraft noise problem has been created by aircraft manufacturers and operators and the Federal Government, not by the municipal, county, or State agencies which own and operate the airports. These local and State public agencies cannot eliminate the problem. They can do little to alleviate it. Any real remedy lies with those who created it.

Beginning with the Air Commerce Act of 1926, and in the Civil Aeronautics Act of 1938 and the Federal Aviation Act of 1958, the Congress declared an easement of air navigation to exist in the navigable airspace of the United States, just as an easement of navigation exists in navigable waters. In 1946, the Congress adopted the Federal Airport Act providing for grants to municipalities and public agencies in aid of airport construction. These grants have not been unconditional gifts. In every instance, the recipient has been required to sign a contract with the United States agreeing, among other things, that:

"2. The sponsor will operate the airport as such for the use and benefit of the public. In furtherance of this covenant (but without limiting its general applicability and effect), the sponsor specifically agrees that it will keep the airport open to all types, kinds, and classes of aeronautical use without discrimination between such types, kinds, and classes: *Provided*, That the sponsor may establish such fair, equal, and not unjustly discriminatory conditions to be met by all users of the airport as may be necessary for the safe and efficient operation of the airport: *And provided further*, That the sponsor may prohibit or limit any given type, kind, or class of aeronautical use of the airport if such action is necessary for the safe operation of the airport or necessary to serve the civil aviation needs of the public." (Para. 2, part III—Sponsor's Assurances of the FAA Project Application, Form FAA–1624.)

This language from the project application is incorporated by reference in the "Grant Agreement" between the Federal Government and the airport sponsor. Needless to say, noise annoyance and damage to owners of adjacent property is something different from safety of aviation.

Thus, the aircraft noise situation which has been greatly aggravated by the introduction of jet aircraft into civil air commerce, may be summed up this way.

1. The Federal Government has imposed contractual restraints on barring jet or other types of aircraft from public airports as quoted above.

2. The Federal Aviation Agency has the exclusive power to regulate the manufacture and operation of aircraft from a safety viewpoint, and if there is any question about its ability to regulate it from a noise standpoint, the Congress can and should give this additional power.

3. The Federal Aviation Agency has, by its exclusive powers, certificated all jets presently operating for use in air commerce and has approved their use by each air carrier into each of the airports served with such equipment by those carriers.

4. The Federal Aviation Agency has established no criteria for manufacture or operation of aircraft to assure an acceptable level of noise to persons on the ground, consequently, FAA certification of these aircraft for

use in air commerce has been without regard to the amount or degree of noise annoyance caused to persons on the ground or to damages to property interests on the ground.

Bad as the situation caused by jet aircraft may be, it will be infinitely worse a few years hence when the airlines put supersonic aircraft into operation unless the Federal Aviation Agency and the Congress take immediate steps to prevent it.

This is the background against which one should weigh and evaluate the claim that aircraft noise is a local problem for the solution of which the local municipality is responsible and for which so-called airport zoning is suggested as a panacea.

WHAT IS MEANT BY AIRPORT ZONING

By airport zoning is meant an ordinance or other legislative action by the local legislative body to accomplish one or both of the following:

1. To restrict the height of buildings and structures and the growth of trees on property adjacent to an airport so as to provide unobstructed space for the passage of aircraft.

2. To forbid the use of adjacent property for residences or similar purposes, and to restrict it to uses which (allegedly) can be carried on regardless of the amount of noise or inconvenience caused by the flight of aircraft over it.

It is local legislation addressed to the second of these objectives which is suggested as the panacea for the aircraft noise problem. Its effectiveness is extremely limited and it is no solution to aircraft noise.

WHETHER LAND-USE ZONING IS CONSTITUTIONAL

At the outset the question arises whether land-use zoning is constitutional. Normal zoning which has been upheld by State courts involves restricting the use of all the property in the use zone for the common benefit of all the property in the zone. It is because both the burden and the benefit are mutual that the courts have upheld zoning from the constitutional standpoint.

In contrast, airport land-use zoning avowedly places a burden upon property adjacent to the airport, and avowedly does not do so because the restriction benefits the property. It does so that aircraft may operate freely over the area while going to and from the airport, and so that the landowner's claims for damages due to aircraft noise and disturbance will be eliminated or minimized.

Whether local legislation of this sort can be justified as zoning or whether it constitutes a taking of property for a public use (an easement for air navigation) is a question which arises not only under the Federal Constitution but under each of the 50 State constitutions. We believe that such legislation has been upheld in at least one State, but no one can properly hazard an opinion as to what will happen in each of the other 49 without a careful study of the law of each jurisdiction. Even if such a study were made, the final word would still rest with the courts. In view of the uncertainty as to what the courts may do, no one can properly urge so-called airport land-use zoning as a panacea.

THE ZONING POWERS OF AIRPORT OPERATORS

Many of the airports used by scheduled airlines operating jet aircraft are owned and operated by cities, countries, or States. Presumably, they have zoning powers. Whether these powers encompass so-called pairport land-use zoning is a question which can be answered in the case of each city, county, or State only by studying the provisions of the city charter, county or State law, or other enabling act under which the particular airport is operated. Even if the doubtful assumption be made that airport land-use zoning will be upheld in all 50 jurisdictions, there is still uncertainty as to how many city, county, and State airport operators have been vested with power to provide for this novel type of zoning.

To say that if they do not have the necessary power, they can obtain it from the State legislature may well be unrealistic. The problem of obtaining authority from the legislature to oust residents from extensive areas for the benefit of airlines operating jet aircraft may not be easy. Particularly in States where the legislature meets only biennially, it may be a matter of years.

Moreover, many of our airports are operated by public corporations consisting of appointed commissioners, commonly known as authorities. Like the National

Government, a State government is divided into three branches—legislative, executive, and judicial. A body consisting not of representatives elected by the people but of members appointed by a Governor, mayor or county executive would appear to be an arm of the executive branch. The zoning power, however, would seem to be a legislative power, and there is room for doubt as to whether such a power can be vested in an authority of the type indicated.

In some instances, the area to be zoned would lie outside the limits of the city or public agency which operates the airport. In these cases, and in the case of the above authorities, the zoning power, if it exists, is vested in another municipality or political body. The Federal Government's own experience at Dulles International Airport shows how unrealistic it would be to rely upon zoning in such cases.

USES COMPATIBLE WITH AIRCRAFT NOISE

In most instances the airport has been established away from the business center of the community in an area which has or has become residential. Quite naturally the complaints by neighboring property owners are by residents; and it is easy to say "Forbid people to reside in the area, and complaints by residents will be eliminated." But will anything more be accomplished than to eliminate complaints from one type of user and substitute complaints from another? In short, what users are actually compatible with present and future aircraft noise?

Golf courses are frequently cited as a use compatible with air traffic, but when one visualizes a jet aircraft roaring overhead when a player is at the top of his swing or is making a putt, it is easy to foresee claims by a golf course owner that the value of his property has been materially reduced.

Industrial uses are also cited as compatible, but the question arises, what particular industrial uses? Would not a worker, while in a light manufacturing establishment or a secretary while in the manager's office, be as bothered and upset by the noise and vibration from low flying jet aircract and the soon-to-be-expected supersonic aircraft and by the fear of aircraft crashes, as he or she would be while in a living room? In this day and age, will the courts hold that the well-being and convenience of workers are to be respected while in their homes but not while at their places of work? Are not claims to be expected that aircraft noise and disturbance has materially reduced the value of the property for any uses whatsoever, excepting solely uses which create at least as much din and vibration as do the low flying aircraft and that the owner cannot find a tenant or purchaser for such limited uses? Is it proposed that areas around airports be zoned solely for such purposes?

Even industrial zoning around an airport does not mean the same thing around all airports. For example, zoning laws in some jurisdictions are permissive and not mandatory. Some do not have performance zoning. While it is true that if an area is zone "AA" residential, nothing but single family dwellings can be built in the area; but if it is rezoned to "C" commercial, then anything above "C," such as, single family dwellings, multiple dwellings and light commercial can be built in the area. The same is true of industrially zoned land, and although the property may be zoned industrial, there is no assurance that it would be used for industrial purposes. Some airport operators who have tried to change zoning laws found that bankers and investors who have bought land for industrial use at a high price, have been able to resist successfully the effort. The highest priced land near some airports is industrial zoned land, because the owner is not restricted and can build anything on the land that he wishes. This, of course, gives no zoning control at all.

From a practical approach, the amount of land around an airport that would have to be zoned industrial in the approach zones and as buffers for lateral separation, would make it obvious that the zoning of so much land industrial would be completely unrealistic, and the actual value of the land would be deflated; that is, a partial taking would occur. The airport industrial land together with all of the other land throughout a city which has previously been zoned for industrial use will greatly exceed any possible or realistic need for so much land for industrial purposes in many communities.

At one of our member airports—a midwestern city of about 350,000—application of the Federal Aviation Agency's planning series item No. 3, aircraft noise abatement, September 2, 1960, entitled, "Area Recommended for Nonresidential Development and the Exclusion of Places of Public Assembly," results in an

area encompassing 5,760 acres in the approaches to the airport, and 5,760 acres at a nearby Air Force base, or 11,520 acres in all.

This is a lot of land to be zoned industrial or commercial in a city of this size. These figures do not include the mile-wide zones over the runways since these are on airport property.

EXISTING USES

Normally, when a zoning ordinance is adopted, existing uses are saved. When an area is zoned for one-family residences, any existing stores, music academies, gas stations or other nonconforming uses may be continued. If this policy is followed with respect to airport zoning, it will constitute no solution whatsoever at those areas where the noise problem is the greatest—where residential communities and developments already exist. To be effective at such airports, the zoning ordinance must not only forbid the construction and occupancy of new residences but must require the abandonment of existing ones. It may well be doubted whether such an ordinance can be justified either from the constitutional or social standpoint, but it is equally doubtful whether an ordinance which permits the continuance of existing residential uses will accomplish its alleged objectives.

HARDSHIP CASES

Normally, also, a zoning ordinance establishes a zoning board to which appeals may be taken in hardship cases. The zoning board has power to grant exemptions from the restrictions imposed by the ordinance. Here, also, following the normal practice would mitigate against the effectiveness of zoning as a solution to the noise problem, but a failure to do so might raise serious constitutional questions.

THE PROVISIONS OF THE SPONSORSHIP AGREEMENTS REGARDING ZONING

As indicated above, airport operators receiving Federal grants are required to enter into sponsorship agreements regarding the operation and maintenance of their airports. Among other things, these agreements require the sponsor to remove or mitigate structures which might constitute hazards to aviation and to do so either by acquiring aerial easements, by zoning or by lighting the structures. The areas within which and the heights at which structures constitute aviation hazards are specifically stated. This is the only reference in the sponsorship agreements to zoning as to height. Even in that instance it is but one of several methods by which a result is to be accomplished. There is no reference whatsoever in the sponsorship agreements to land-use zoning and no suggestion whatsoever that the sponsor should attempt to limit the purposes for which adjacent properties may be used. The current suggestion that the sponsor has a responsibility to do so is an obvious afterthought.

IN CONCLUSION

In conclusion, it must be said that suggestions that the aircraft noise problem can be solved in whole or in substantial part by airport zoning seem to be unrealistic. Apparently no consideration has been given to (1) the serious constitutional and legal questions involved, (2) such matters as the distance to which the zoning should extend from the airport, (3) what uses are, as a practical matter, compatible with aircraft noise and disturbance, (4) how an ordinance should be phrased to accomplish the objective, and (5) whether the objective can be attained without ousting existing residents. (6) No consideration seems to have been given to the possible public reaction to the proposal that owners of desirable residential property be forbidden to develop it for residential purposes in order to prevent claims for damages due to aircraft noise and disturbance, or (7) to the question whether such action by a local governing board would be justifiable from the overall city standpoint.

In view of the obvious defects of the proposal, it is difficult to avoid the impression that it is a make-shift proposal motivated by a desire to divert attention from the fact that the problem is created by the airlines and the Federal authorities, and to avoid the logic of the situation which would require those who are responsible for creating the problem to be responsible for its solution.

To summarize:

1. The aircraft fly through air space in which the Congress has declared a right of air transit to exist.

2. The noise and disturbance are due to the types of aircraft flown and the method of their operation. These are matters determined by the airlines, subject to Federal approval. They are not within the control of the local public agency airport operator.

3. The aircraft fly in interstate and foreign commerce over which the Federal Government has paramount power and where it has a corresponding responsibility.

4. The Federal Government has undoubted power to regulate the flight of aircraft so that they will not cause undue or excessive noise or disturbance, but it has yet to do so. If it does not care to regulate low-flying aircraft to that extent, it has undoubted power to acquire whatever easements may be necessary or to make grants to local public airport operators for that purpose.

5. The scheduled airlines which operate the aircraft in question serve the country as a whole and the elimination of the noise problem will benefit the country as a whole. It would seem any realistic effort to solve the problem should involve Federal action along the lines indicated, rather than attempts to characterize the problem as a mere local problem curable by local authorities through so-called airport land-use zoning, the constitutionality and practicability of which is open to question.

A program of Federal legislation to clarify this situation is needed and we will welcome the opportunity to be of service to the Congress in this regard.

This concludes this series of hearings that was arranged for this particular time.

I observe that some reference was made yesterday about pictures that were presented. I am not sure that they can be included in the record. We will leave that up to Mr. Johnson.

STATEMENT OF EDWARD E. BLUTHARDT, PRESIDENT, VILLAGE OF SCHILLER PARK, ILL.

The CHAIRMAN. Is Mayor Bluthardt here?

Mr. BLUTHARDT. Yes.

The CHAIRMAN. Mayor, I understand from Mr. Collier that you have not been given an opportunity to express your feelings one way or another.

Mr. BLUTHARDT. I do not think we have time for that, that is to fully express my feelings. I think it would take some time.

The CHAIRMAN. You mean they are indefinite, your feelings?

Most everybody else has got his feelings to the point where he can express them pretty sharply and to the point.

Mr. BLUTHARDT. Well, I had prepared a statement to present to this committee, and I hoped for the opportunity to present it.

The CHAIRMAN. Well, I have a copy of your statement. Would you like for it to be included in the record?

Mr. BLUTHARDT. I would.

The CHAIRMAN. Without objection it will be made a part of this record.

(The statement of Mr. Bluthardt referred to follows:)

STATEMENT OF EDWARD E. BLUTHARDT, PRESIDENT OF THE VILLAGE OF SCHILLER PARK, COOK COUNTY, ILL.

Mr. Chairman and members of the subcommittee, I am here on behalf of the people of Schiller Park. Schiller Park is a moderate size village with a present population of about 7,000. It is located in Cook County, Ill., adjacent to the southeast corner of O'Hare International Airport. In fact, more than 150 acres of land within the corporate limits of Schiller Park are also within the boundaries of O'Hare Field. These 150 acres were taken forcibly from their owners

by alleged condemnation proceedings by the city of Chicago and against the wishes of the authorities of the village of Schiller Park. The land was taken for runway clear zones.

Schiller Park was incorporated under Illinois statutes in 1914. Its population until World War II was about 600. The village began to develop residentially at the end of World War II. Its population, as determined by the 1960 census, was 5,636. It is anticipated that by 1970 its population will exceed 9,700.

It is my belief that the development of O'Hare Field as one of the world's largest air terminals was not a major factor in the residential growth of Schiller Park. Schiller Park grew because it was able to meet the demand for moderate priced homes on fairly large lots which followed World War II. Most of the residents of our village are employed in Schiller Park, Chicago, or some nearby suburb. We have not been dependent on O'Hare Field.

I don't mean to leave the impression that the development of O'Hare Field has not had its effect on the development of Schiller Park. Industrial, commercial, and multiple dwelling construction has been very active. Land values for these three classifications has multiplied manyfold in the past few years. As a consequence, village revenues are increasing but, on the other hand, because of these activities we are now faced with problems for which we are not fully prepared. We strongly suspect that business speculations arising out of our close proximity to O'Hare Field are being financed by persons of questionable repute. Yet these are all legal business pursuits, and we must treat them as legitimate businesses until they prove otherwise. These activities have resulted in a great deal of additional work for our small police department. They must constantly be on the alert for illegal activities. These activities and developments have brought about a desperate need for new and additional facilities, particularly for the police and fire departments.

Our greatest and without question our most persistent problem is that of the jet noises and vibrations. The history of Schiller Park shows that most of the residential development took place prior to the advent of the jet age. Perhaps 85 percent of its single-family residential land is already developed. Consequently, the loss by our residents of their right to enjoy the quiet and peace of homelife has come as a shock to them. As a result, many have sold their houses and moved to more peaceful environments. Others have had for-sale signs on their homes for months, but the roar of jets overhead has scared away many buyers. Residential property values have not benefited from O'Hare Field.

The officials of the cities of Des Plaines and Park Ridge have or will go into greater detail on jet noises and vibrations than I will, but I will cite a few examples of the effect of jets on our village. A lady was looking out her window at the time a huge jet was passing over rather low. As she watched and felt the vibrations, the window pane cracked before her eyes. Plastered walls and ceilings have chipped and cracked. Under certain weather conditions planes seem to prefer coming in low to get under the "soup and clouds." Under these conditions, which seem to occur more and more frequently of late, the roar and vibrations are horrifying. If it occurs during sleeping hours we are shocked out of our sleep—sit right up in bed praying that we are wrong in our fear that the plane is about to crash. You would think that we of Schiller Park would get accustomed to this, but I don't think we ever will. The flight patterns are too irregular—seemingly dictated by weather conditions and traffic volume. About the time you get used to the constant roar produced at certain altitudes—the pattern of takeoffs and landings is changed—planes are swooping down or climbing up. The noise is terrific, television reception and ordinary conversation is impossible.

This, gentlemen, is the story of O'Hare Field, its jets, and the effect on the village of Schiller Park. It is an experience we share in common with the surrounding communities of Franklin Park, Rosemont, River Grove, Elmwood Park, Northlake, Melrose Park, and Bensenville, as well as Des Plaines, Park Ridge, and other municipalities to the north of us. These communities represent a population of about a quarter of a million people.

I don't think that our forefathers envisioned anything like the jet noise problem when they drafted the preamble to our Constitution providing for the Federal Government to insure domestic tranquillity to the people of this great country. Nevertheless, this Government is thereby obligated to abate this nuisance as quickly as possible. Flightpaths must be carefully considered to avoid residential areas, pilots must be made to recognize and consider the effect of their operating habits on residential communities, and above all the

Federal Government must encourage and finance, if necessary, a research project designed to produce an effective but safe noise suppressor for jets. In this age of scientific miracles, of astronauts and satellites, of atomic submarines, of Telstars and possible trips to the moon, surely a device as simple as a noise suppressor cannot be far off—provided the determination of our Federal Government is behind it.

I thank you for this opportunity to be here and to be heard by you.

The CHAIRMAN. Do you care to have any further comment about it?

Mr. BLUTHARDT. Well, I have a few comments I would like to make bearing on some of the testimony today and particularly the testimony concerning the city of Chicago and their cooperation with the surrounding municipalities.

The village of Schiller Park is, perhaps, the smallest community in the O'Hare Field area. It has a population of, perhaps, 7,000 to date.

We have unfortunately lost a number of acres to progress and to the city of Chicago, which has been taken for alleged clear zoning for the construction of a proposed new east-west runway which we can only feel will again compound our problem of noise over the village of Schiller Park.

But at no time during any of the acquisition by the city of Chicago, by so-called condemnation proceedings, have the officials of the village of Schiller Park been informed by the city of Chicago of these intentions or asked about our feelings or told about the problems and the necessity for acquiring these acres.

It has created problems in the way of an outstanding bond indebtedness because we receive no tax income from the land. We also have a high school which has not been mentioned at this hearing, East Leyden High School, and another high school also just to the south of O'Hare Field and within perhaps a mile and a half of the airport proper.

My statement, of course, would refute the matter of cooperation. I think there has been entirely a lack of cooperation as far as the city of Chicago and the small suburbs surrounding O'Hare Field.

We have heard of Park Ridge and now you have heard of Schiller Park.

There are, perhaps, 10 other municipalities and the overall population is of a quarter of a million of people in this area.

I think also that the small person, especially the person who has resided in this area for many years before the advent of the jet planes is to be considered.

I think Congress does have an obligation to provide for the peaceful enjoyment of one's home and his life. We have lost these in Schiller Park.

Schiller Park is affected greatly, especially from the use of the northwest-southeast—I believe they call it 32—landing field under very adverse weather conditions.

The backdoor approach is what that is called, and at those times we actually have been knocked out of our beds by the low landing craft, and we have cracked plaster and windows which give because of the low-flying aircraft.

This is not a constant thing, but this is a thing that comes up unexpectedly. We could get accustomed perhaps to a regular pattern of flight, but just about the time we get accustomed to a patterned

flight, the flight is changed because of weather conditions and a new pattern and a new sound and a new experience is received.

The rest of it, Mr. Chairman, is covered in my statement, but I thank you for the opportunity to make these remarks.

The CHAIRMAN. Thank you, Mr. Mayor, for your comments.

Any questions of Mayor Bluthardt?

This will conclude the hearings.

It will be the purpose of the committee to try to arrange a time for discussion by a group of experts in the various fields, from the industry and operators as well.

I have been thinking of this now for the last several months, and I think we have reached a stage in this session of Congress that it could be arranged and, Mr. Howze, I want you and Mr. Conway and our Dr. Stevenson to set it up, and arrange it, and get participants to arrange such technical discussion by a panel of people in this same field within the next few months.

I believe that it would be a very helpful thing if we could arrange such a panel discussion. I think, perhaps, we could impress some of the people who have responsibilities in this field that it is possible to continue the progress in the field.

So I will be talking to you about it.

Dr. Stevenson, we had some contact with the National Academy of Sciences, and they are going to help provide technical people for us and some others, and I would assume from your pamphlet of your discussion, Mr. Cram, that you might very well participate in this.

I do not know, but in looking over your statement it seems to me that you would come within that category.

Nevertheless, I do make this announcement now, so that the people of Chicago, and around that area, may know of it and in order to get the technically qualified and the military involved, because the question of sonic booms have come into this whole subject matter, too.

This record will be held open for several days.

If there is nothing else at this time, the committee will adjourn.

(The following was subsequently supplied:)

VILLAGE OF ELMWOOD PARK,
Elmwood Park, Ill., July 18, 1962.

Mr. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

Mr. CHAIRMAN: The village of Elmwood Park, Ill., a community of 24,000 residents, is in the direct approach path of the long runway at O'Hare Field and we are experiencing considerable distress caused by the low-flying jet planes. The noise of low-flying jets roaring over the town many times at about 1-minute intervals has seriously affected our community living.

We request the committee to take any action that will bring relief without jeopardizing air traffic safety. Observation studies by our safety committee shows a considerable variance in height for approaching jet aircraft which clearly indicates many planes are coming into the glide path at a lower altitude than necessary.

Perhaps an intensive study of landing patterns plus the construction of another runway laid out in such a direction as to guide aircraft over less populated areas will be the answer. In the meantime, we respectfully ask the committee to consider raising the minimum approach altitude, decrease the extremely close frequency of landings and devise better noise-suppressing equipment. An additional problem is the constant interference with television transmissions. The electrical systems of all aircraft should be designed so as to reduce spurious radiation on commercial frequencies.

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May we again emphasize the fact that we do not request any action that will endanger air traffic safety but we do request an improvement in ground safety and relief from the condition that is affecting the nerves and living habits of our community.

Respectfully submitted.

ELMER W. CONTI, *President.*

(Whereupon, at 4:30 p.m., the committee was adjourned, subject to the call of the Chair.)

AIRCRAFT NOISE PROBLEMS

TUESDAY, DECEMBER 4, 1962

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TRANSPORTATION AND AERONAUTICS
AND SPECIAL SUBCOMMITTEE ON REGULATORY AGENCIES
OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittees met, pursuant to call, in room 1334, Longworth Building, Hon. Oren Harris (chairman of the committee) presiding.

The CHAIRMAN. The subcommittees will come to order.

Today two subcommittees of our Committee on Interstate and Foreign Commerce have met for the purpose of considering what I think is a most important problem, perplexing indeed, and one that has and is receiving the attention of many of our people throughout the country.

First, let me say that I want to thank the members of the committee for taking time from their busy schedules in their districts, and no doubt at some sacrifice, and arranging their schedules to be here with us this week for this most important discussion. May I also take this occasion to thank the distinguished members of this panel for their presence here today and for their participation in this all-important and difficult situation, with which our committee is faced, in attempting to discharge its responsibilities in carrying out the mandate and direction of the House of Representatives.

The Subcommittee on Transportation and Aeronautics, of which our distinguished colleague, Mr. John Bell Williams, of Mississippi, is chairman, has general jurisdiction over legislation involving our national system of civil and military transportation.

In carrying out the responsibilities and duties of the committee and pursuant to the authority given to me as chairman, I appointed a Special Subcommittee on Regulatory Agencies, which, as is well known, is the result of previous special subcommittee hearings on matters of regulatory agencies by the Legislative Oversight Subcommittee in previous Congresses.

This special committee is the instrumentality created by my action as committee chairman pursuant to the authority granted by the Congress, section 136 of the Legislative Reorganization Act of 1946.

That section reads as follows:

> To assist the Congress in appraising the administration of the laws and in developing such amendments or related legislation as it may deem necessary, each standing committee of the Senate and the House of Representatives shall exercise continuous watchfulness of the execution by the administrative agencies concerned of any laws, the subject matter of which is within the jurisdiction of such committee; and for that purpose shall study all pertinent reports and data submitted to the Congress by the agencies in the executive branch of the Government.

The Federal Aviation Agency is one of the regulatory agencies under the jurisdiction of this subcommittee and the Committee on Interstate and Foreign Commerce pursuant to the rules of the House. I think any representatives of the Federal Aviation Agency who are present today would agree that our subcommittees have more than a passing interest in the operations of the Agency.

The subject matter of these discussions, broadly speaking, is aircraft noise nuisances and hazards to persons and property on the ground. More precisely, these discussions will be carried on not by those whose interest in aircraft noise is the result of suffering from it, but by those who are, or, I hope, soon will be, able to do something about it or offer suggestions that will accomplish something toward the abatement of this problem. Our witnesses at these panel discussions differ from those at earlier hearings held on this important subject matter. The Committee on Interstate and Foreign Commerce, or its Subcommittee on Transportation and Aeronautics, has held hearings at which most of the witnesses were complainants and representatives of complainants. We have heard complaints from airport neighbors in New York in 1959, from Los Angeles and San Francisco in 1960, from Chicago just last July, and additional hearings have been held in Washington in 1960 and 1961.

In addition, the House Committee on Science and Astronautics held hearings on the subject in August of 1960 and in that same year issued a report setting forth its findings.

On August 23, 1961, the House of Representatives considered and agreed to House Resolution 420 by which the Committee on Interstate and Foreign Commerce was authorized and directed to conduct a "full and complete investigation" of the problem of aircraft noise.

I should like for the record to include a copy of that resolution at this point.

(The resolution referred to follows:)

[H. Res. 420, 87th Cong., 1st sess.]

RESOLUTION

Resolved, That the Committee on Interstate and Foreign Commerce, acting as a whole or by subcommittee, is authorized and directed to conduct a full and complete investigation and study of the problems involved in, and measures to minimize or eliminate, aircraft noise nuisances and hazards to persons and property on the ground. In the conduct of such investigations and study, the committee, among other things, shall give attention to—

(1) the noise created by the operation of aircraft, in the air and on the ground, and the effect of noise on persons and property on the ground;

(2) research and development in aircraft and aircraft engine design;

(3) research and development in design, application, and use of noise-suppression devices;

(4) the design, construction, and operation of airports;

(5) the cost of measures to minimize or eliminate aircraft noise nuisances and hazards to persons and property on the ground;

(6) air traffic rules governing the operation of aircraft at and near airports; and

(7) the extent of authority vested in Federal and local regulatory agencies and airport operators to prescribe safety regulations applicable to any airport operation or development, including authority to impose controls on the operation of aircraft so as to minimize the noise and other hazards created by the operation of aircraft, and the manner in which such authority has been exercised.

For the purposes of such investigation and study the committee, or any subcommittee thereof, may sit and act during the present Congress at such times and places within or outside the United States, whether the House has recessed, or has adjourned, to hold such hearings, and to require, by subpena or otherwise, the attendance and testimony of such witnesses and the production of such books, records, correspondence, memorandums, papers, and documents, as it deems necessary. Subpenas may be issued under the signature of the chairman of the committee or any member of the committee designated by him, and may be served by any person designated by such chairman or member.

The committee may report to the House at any time during the present Congress the results of any investigation or study made under authority of this resolution, together with such recommendations as it deems appropriate. Any such report which is made when the House is not in session shall be filed with the Clerk of the House.

The CHAIRMAN. While piston-powered airplanes, like the railroads and horseless carriages that preceded them, generated their share of noise complaints from disturbed citizens, it is only with the advent of the jet age that noisy aircraft have become a major problem. It is a complicated and vexing problem that so far has defied solution. I made a statement last summer in which I stated:

The increasing annoyance caused by noisy airplanes around our Nation's airports is largely a product of the increasing use of jet engines in our commercial and military planes.

For several years now, Members of the House and many others have been acutely aware of the irritations generated by the roaring and whining of these powerful new engines.

We are told that this annoyance and irritation is the price we must pay for technological progress in the jet age. To an extent, and we do not yet know to what extent, I think that statement is true. There is no question but that engines make noise. It is also true that as engines become more powerful, they make more noise. And more powerful engines are being designed, manufactured, and operated every day.

I repeat that statement today.

Needless to say, the people—those who fly and those over whose homes the planes pass—and the Congress have as their primary consideration the question of safety.

Safety is the concern that inspired and the theme that pervades the Federal Aviation Act of 1958, and indeed it was in the law prior to the Federal Aviation Act. But that act is silent on the subject of noise. Nevertheless, the existence of this resolution referred to reflects the recognition by the House of Representatives that aircraft noise annoyance is a problem for which the Federal Government must bear some responsibility.

Unhappily, because of the complexities that beset us in our contemplation of this problem, we cannot yet feel that we are close to any final answer. The continuing flood of noise complaints is eloquent testimony to that fact.

Any solutions achieved must be compatible with the maintenance and promotion of the safe, efficient, and economically feasible air transportation system contemplated by the Federal Aviation Act of 1958 and its predecessor acts.

In considering these matters, the subcommittees are interested in exploring what has been done, what is now being done, and what can be anticipated in the future to alleviate, if possible, the annoyance created by these noisy jets.

I would like to say that when I use the word "solution," I do so recognizing that there is no such thing in the offing, although a lot of study and thought has gone into it. No engine that can propel a heavy aircraft at speeds of many hundreds of miles per hour can be absolutely silent.

We are not going to ground the planes and we are not going to shut down our airports. We are committed to a national, and indeed, an international, system of air transportation. This is of paramount importance, from the standpoints of our commercial growth and our national defense.

At the same time, however, the Congress has recognized that our citizens are entitled to the quiet enjoyment of their homes. Church services and school sessions should be carried on with as little interference from outside noise as is possible in our society.

Clearly, then, we are dealing with a situation in which I do not feel that we have any possibility of pleasing everybody. Our problem is to search for a balancing of the interests of those involved. That includes the householders, travelers, carriers, and all the rest.

Another word of caution: many things I hear lead me to suspect that there is mounting pressure to thrust entire responsibility for "solving" the aircraft noise problem upon the Federal Government. Indeed that is not only true on the question of aircraft noise these days.

While I recognize that the Federal Government, through our airport program to which we have been committed here in all these years, its responsibility for air traffic control, and otherwise, has a definite role in the situation, we would only delude ourselves if we failed to see that the larger responsibility must be shared by all involved. That includes the industry, the operators, and the local people.

On March 5, 1962, the Supreme Court of the United States rendered a decision holding an airport operator liable in damages to a householder whose suffering from aircraft noise over his house was sufficiently intense that he had to move out.

The Court agreed with a lower tribunal that the airport, when it moved in on the householder, should have taken his land and paid him for it. In the wake of the Court's decision, law suits have sprouted all over the country, stimulated by disturbed airport neighbors who see in that case, referred to as the *Griggs* decision, a precedent for their own legal actions. I expect we will hear more about the implications of that case during these discussions.

While the Supreme Court decision in that case may be more limited in its application than some have feared, nevertheless, it has helped to highlight the fact that jet airplanes are in many communities not only a major source of complaint, but may have far-reaching economic consequences for a great many people.

In arranging for these panel discussions, we determined that adequate coverage could be given the seven topics specified in the resolution referred to by dividing these discussions into three segments. The first, which is today's discussion, will consider the operating elements of aviation as they affect aircraft noise and its abatement.

The second segment, which will be scheduled for tomorrow, will concern itself with technical matters—acoustical engineering, aerodynamics, jet propulsion, engine and airframe design, and the like.

Our panel moderator will be Mr. John P. Stack of Republic Aviation, formerly Director of Aeronautical Research for the National Aeronautics and Space Administration.

Then on Thursday we expect to have the third segment, and it will cover, as thoroughly as we can, the legal and governmental problems generated by aircraft noise and the various approaches to solutions from these points of view. The moderator for that occasion will be the Honorable Welch Pogue, former Chairman of the Civil Aeronautics Board and now a distinguished member of the Bar of the District of Columbia.

I think the committee has been extremely fortunate in being able to persuade such an outstanding group of experts from these three general fields of aviation to participate in these discussions. While I recognize that much thought and effort has gone into achieving some amelioration of the problem, it seems that there has got to be more.

The public is entitled to know that everything possible is being done to find the answers. I hope that these discussions may be a turning point toward a more productive future.

I do not pretend to believe that the answers will be easy to come by. We are near the threshold of the age of supersonic commercial air transportation. I have had some discussions on this matter myself with people responsible for its development and I can say that there is the possibility in the not too distant future that it will come about, but a host of new problems will be entailed with it. Anyone who has heard and felt the impact of a "sonic boom" will know what I mean, and people all over the country have experienced it.

Furthermore, this committee pursuant to the direction of the House of Representatives has to make a report and we have to have the best advice and information that we can get for that purpose. The Airport Operators' Council has had a group working on this problem. They will no doubt give further reports on it. Congress has provided funds for the Federal Aviation Agency. Several contracts have been entered into in the past. I hope that the reports from those groups will be coming forth in the very near future. Mr. Halaby is a member of this panel.

Probably we will learn of some of them. The industry has a committee set up that has been giving attention to the problem, and I should like to say here that I do not share the feeling that has been expressed by some that most of these studies have been made simply to postpone the problem and to make the public feel that something is being done without any hope or intention of doing anything about it.

I do share that view myself, though, as I have said, and I think members of this committee share the same feeling, that it is difficult and perplexing problem and we do not know what the answers are going to be. We must and should assume the position here today that something can be done about it and if we don't put our best efforts and certainly our will to it we cannot hope to accomplish anything.

Having made these introductory remarks, I would like to say for the benefit of the members of the committee who were not here yesterday when we had a briefing with the moderators that the procedure will be to present to you General Cook who is well known in

this field. We are fortunate to have him and we appreciate his undertaking the responsibility of being moderator of this panel.

General Cook will present in turn the members of the panel for the record. These gentlemen have been carefully and well chosen because of their position in this field. General Cook will have full and complete control of the presentation by the panel and will present the panel, and we will let them proceed as they feel would be best for a full and complete discussion.

I assume it will be agreeable with the members of the committee to let the panel proceed on their own without interruptions unless some member would like a point clarified. At the conclusion of the panel's discussion, Mr. Howze, Mr. Conway, and members of the committee will be given an opportunity for questioning.

We have several other Members of Congress, not members of the committee, who have concerned themselves with this matter in the past. They will be noted for the record. We are very glad to have you with us. Some others who have indicated their interest and who wanted to be here may come in a little later.

With that I should like to present to the committee Gen. Orval R. Cook, U.S. Air Force, retired, as the moderator of today's panel.

General, thank you very much for being here. You may proceed.

GEN. ORVAL R. COOK, Moderator

NAJEEB E. HALABY	**ALAN S. BOYD**
CHARLES H. RUBY	**JOHN H. WINANT**
JOHN R. WILEY	**LESLIE O. BARNES**
STUART G. TIPTON	**BELFORD G. BROWN**
ROBERT M. CRISP	

General Cook. Thank you, Mr. Chairman. For the record, I am Orval R. Cook, general, U.S. Air Force, retired. I will now introduce the members of the panel, panel I, on operations.

On my immediate right I have Mr. Najeeb E. Halaby, Administrator of the Federal Aviation Agency. On my immediate left I have Mr. Alan S. Boyd, Chairman of the Civil Aeronautics Board. Next on my right is Mr. Charles H. Ruby, president of the Airline Pilots Association. Next on my left is Mr. John H. Winant, president of the National Business Aircraft Association. Next on my right is Mr. John R. Wiley, director of aviation, Port of New York Authority. Next on my left is Mr. Leslie O. Barnes of the Association of Local Transport Airlines. Next on my right is Mr. Stuart G. Tipton, president of the Air Transport Association of America. Next on my left is Mr. Belford G. Brown, president of the Airport Operators Council, and to his left is Mr. Robert M. Crisp, president of the American Association of Airport Executives.

Mr. Chairman, I believe it would be well for me to indicate to you and to the distinguished members of your subcommittees briefly how we intend to proceed.

As you have indicated, this whole subject is a complex and even the operations element is a complex one. No one individual here can possibly answer all of the questions on any particular phase of this subject, so that we expect to have as free and as uninhibited a discussion

as we possibly can among the members of the panel. Every member of the panel is privileged to supplement, complement, or even to disagree with the statement made by another member of the panel if it will serve the purpose of clarifying the discussion and bringing out factual information which you gentlemen desire.

Members of the panel will mention several technical subjects which we are not prepared to explain in detail, so that from time to time we may have to refer further detailed discussion of a technical subject in connection with this noise problem to tomorrow's panel of technicians.

We are not scientists or engineers in our present capacity here. There will be people better qualified on those subjects tomorrow.

First of all, I will ask Mr. Ruby to give us all an explanation of the operation of both propeller-driven and jet aircraft from engine start-up through flight and engine shutdown at destination with particular reference to the use of engine power and the consequent generation of noise. In doing this he will also discuss procedures that are followed to diminish annoyance caused by aircraft noise.

Next I will call upon Mr. Halaby and Mr. Boyd, first Mr. Halaby to discuss policies of FAA on noise abatement, rules and regulations, enforcement authority, and so on, and then Mr. Boyd to discuss safety versus noise abatement procedures and some of the economic considerations that enter this problem.

Mr. Tipton then will be asked what major trunk carriers have done, are doing, and plan to do about aircraft noise and discuss economics of the problem.

Mr. Barnes will be asked to discuss the position of local transport airlines with reference to the noise problem.

Mr. Winant will discuss some of the smaller executive type aircraft, their noise generation, and what the operators of these aircraft are doing about noise abatement and what they further plan to do in the future. Mr. Brown, Mr. Crisp, and Mr. Wiley will discuss noise problems in and adjacent to airports, zoning, noise absorbers, such as vegetation, elimination of reflectors, airport design, and management for noise abatement, together with ground controls.

Mr. Wiley will have some charts which he will present on the subject.

Gentlemen, I will start with Mr. Ruby and ask him to discuss the operation of aircraft.

Mr. RUBY. Gentlemen, first I would like to state that the airline pilots in general, if they were capable of tiptoeing in and out of each and every airport silently, they would be most happy to do so.

Unfortunately, this is not a physical fact of which we are capable at this time.

To start in with the operation of piston-engine airplanes, the initial startup is not necessarily a noisy procedure as far as the airport neighbor is concerned because generally it is far removed from the areas in which noise is a nuisance to people. Also the taxiing operation is not particularly noisy. It is necessary to run the engines up at the warmup block usually associated with the takeoff end of the runway.

This can consume as much as 5 minutes. It seldom does, however, because generally on four-engine aircraft two engines are run up

simultaneously and on twin-engine aircraft each engine is run up separately. The purpose of this runup is to determine the functional operation of the engine and its related instrumentation.

This involves such things as readout of oil pressure, horsepower indication, if it is indicated in ths form, or BMEP indication, whch is normally the method of determining power delivery, the exercise of the propellers and their pitch control mechanism, and during this period the air traffic control clearance is usually handled by one of the pilot members on the radio through the ground control frequency which enables the flight to proceed on a prescribed clearance and flight pattern.

At the completion of the runup if there are no traffic problems associated with the departure of the airplane it is then free to leave.

Conversely, if traffic problems exist there may be one or more airplanes on the warmup block that may sit there over a protracted period of time, usually at low engine revolutions per minute with a rather minimum of a noise nuisance. The takeoff involves from a practical standpoint the full power capability of the particular engine installation involved. This does create noise. This takeoff power for the most part has a limiting condition in terms of time and the reason for the requirement for a full power application at takeoff is to accelerate the airplane from its static condition to a safe flying speed.

This varies with the gross weight of the airplane in terms of the time required to attain such acceleration. The first power reduction is generally accomplished after a safe alitiutde is reached and a safe airspeed is reached.

For example, a specific airplane type with its maximum gross weight will require considerably more time to reach a safe operating speed than will the same aircraft at a relatively light weight. The performance in terms of climb rate is also impaired proportionate to the gross weights involved. The first power reduction is generally referred to as METO power, which means maximum except takeoff.

This affords some slight reduction in the noise emissions and usually the METO power is maintained for practical purposes to an altitude of some 1,200 or 1,500 feet and during this process the aircraft is cleaned up aerodynamically from the point of leaving the ground and safe clearance reached with the retraction of the landing gear and, as speed increases, the retraction of the flaps, and finally the climb power enables the airplane to proceed to its cruising altitude and a continuous state of climb is maintained unless traffic control specifies otherwise.

The climb power situation actually is a higher power setting than the cruise power condition and from a practical standpoint the condition in which climb power is involved, the aircraft at a distance is not materially a noise problem.

The en route cruises obviously are at altitudes where they are generally not a matter of consideration to people on the ground. The descent generally is not a factor for consideration.

However, the final approach into the airport may or may not require the use of some power to continue the approach. During the final approach stage it is necessary to what we refer to as dirty the airplane up aerodynamically speaking by the extension of the landing gear and extension of the flaps.

This is a requirement preparatory to landing. The taxiing operations again with piston airplanes are generally not much of a problem. There is some variance between various aircraft types and powerplant installations in terms of noise emissions.

However, the main problem is associated with total gross weights and stall speeds. Getting over into the turbine-powered airplane, this is a matter of considerably different operating procedure and for practical purposes deals with aircraft of considerably greater gross weight than do the propeller airplanes.

I think for practical purposes you can consider the maximum gross weights of propeller airplanes running in the order of 130,000 to 135,000 pounds. There are a few exceptions. On the turbine-powered airplanes that are pure jets or fan jets the gross weights range anywhere from 200,000 to 300,000 pounds for takeoff, so I think you can see that for practical purposes we tripled the operational weight between piston-engine airplanes and pure jet or fan jet.

The starting procedure on jets requires the use of air as a means of starting, because it is impractical to operate electric starters with the size engines involved and the torque requirements to rotate the turbines to the necessary speed to attain light-off and continued acceleration to normal operating speeds. This involves the use of a ground-powered unit that can supply a reasonably large volume of air and generally the order of pressure is from some 20 to 35 pounds per square inch.

A starting cycle generally involves approximately 4 minutes for a four-engine airplane. The idling revolutions per minute of most jet engines is of such an order that there are some sound emissions developed from it. If you are stationed at the front end of the engine, you have an entirely different sound pattern than if you are stationed behind the engine.

The compressor whine, as it is generally called, is associated with a rather high-pitched note, whereas in the tailpipe area you are dealing with a rumble. There is no requirement to increase revolutions per minute generally for test purposes on turbine engines.

From a practical standpoint a turbine engine is either in a satisfactory operating condition, or it must be shut down immediately. There are no twilight zones, generally speaking, in the operation of turbine engines.

The taxi-out has about the same consideration as if the airplane were parked in terms of engine operation and performance. For practical purposes the turbine revolutions per minute for ground idling, or in some cases taxi, will run between 50 and 60 percent of total design revolutions per minute.

If you are able to secure an air traffic clearance and you have no ground or airborne traffic delay, there is no necessity to stop and run up the engine. All of the measurements of engine performance and instrumentation can be done during the start and taxi-out with one exception.

The determination of thrust delivery or power delivery must be made at the early stage of the takeoff roll and can be measured on certain types of instrumentation. Generally it is measured with an instrument referred to as an equivalent pressure ratio gage.

It is measuring the differential in pressure between the air inlet in the engine and the exhaust gas pressures in the tailpipe. The acceleration of the engine is relatively rapid from its 50 to 60 percent revolutions per minute up to its maximum operating revolutions per minute, which normally is termed at 100 percent.

Noise emission does occur in these engines during acceleration and during their climb-out. The problem of accelerating a mass from a static condition to an in-flight condition when we are speaking in terms of two or three hundred thousand pounds is not attainable in a few seconds.

As a general average the time required from the time the throttles are opened up until a speed is reached in which the airplane can be rotated in preparation to leaving the ground is in the general order of 20 seconds.

This will vary based on several things. Temperature is a very considerable factor, as is total gross weight of the airplane. It is necessary to maintain the takeoff thrust until the airplane reaches satisfactory minimum control speeds and you can aerodynamically clean the airplane up. By this I mean retracting the landing gear and finally reducing the flaps to a cruise flap condition. In substance, the practice of reducing thrust at approximately 1,200 or 1,500 feet of altitude is generally not an acceptable procedure for this reason: the acceleration of this weight mass is a physical fact and if we are continuing acceleration we can do so with a minimum of expenditure of power.

If we have encountered a static or decelerating condition, then a tremendous amount of power is required to reaccelerate the airplane. These power increases obviously produce noise that is unwanted both from the standpoint of the pilot and the people on the ground.

The reduction in power to a climb condition generally follows assumption of a 1,200- or 1,500-foot condition and this climb thrust is maintained until the airplane reaches its cruising altitude, which may be anything from 25,000 to 39,000 feet under the present operating conditions, at which time, after cruise acceleration is reached, the thrust may then be reduced to cruise thrust and this can be maintained until the descent is started.

Jet airplanes, practically speaking, operate close to their limiting airspeeds. Consequently, it is necessary to reduce thrust when the descent is started. You do not get a reduction in noise in as complete or in the same fashion that you do with propeller airplanes because of the inherent idle r.p.m. of the engines.

The people in front will hear the high-pitched whine of the compressor. Those behind will hear the rumble in the tailpipe. This same proceeding applies through the final approach, the descent, and the landing.

Under certain traffic conditions, it may be necessary to negotiate a go-around, which then involves a considerable increase in thrust and the associated noise that goes with it. If a normal approach in landing is made and the taxi into the terminal building is completed, you have a comparable situation to the taxi-out.

The trust capabilities of engines that are generally in operation with civil aircraft today run in the general order of from 12,000 to 16,000 pounds of thrust per engine. There has been considerable

design effort made in an attempt to reduce both the compressor whine and the tailpipe noises.

The daisy petal design, in terms of the tailpipe, has reduced some of the noise emissions. It has been expensive in terms of design development and it has been somewhat costly in terms of cruise performance for the operation of the aircraft itself.

The advent of the fan engine has brought a further change in the sound levels associated with these particular installations, and to get to the basic physics of the engine itself and the atmosphere through which it passes, the difference in exhaust gas velocity contained within the tailpipe and immediately following emission, compared to the speeds and the temperature differences of the outside air mass through which the airplane is passing, creates a turbulence condition, and this is what produces the noise as far as the rear section of the engine is concerned.

With the advent of the fan, they had the capability of speeding up the column of air around the nacelle barrel and, to a degree, reducing some of this rumble, so, therefore, the design of the fan engine and its operations has produced some appreciable end results insofar as noise reduction is concerned.

However, in a general way, we are still dealing with a 12,000- to 16,000-pound thrust engine. Operationally, all of the people who have been concerned with this problem have devoted much time and effort to try to devise ways and means and methods to minimize noise.

However, we have all known that noise was going to be part and parcel of this operation from the beginning. The military operation of this type of airplane gave us a clue as to what we may expect. The military has not been in the position to use some of the so-called sound suppressors as have the commercial operators simply because the military airplane is not operationally adaptable to such sacrifices when they have to deal with enemy operations.

The airlines have shouldered the burden of some of this additional cost due to the reduction of noise elements by design features.

From the standpoint of what the pilot can do, we have just about wrung out all we can wring out of the operational phase of the airplane. We must stay within the safety limits of the operation, and I can say, without any question that the flight characteristics of a swept-wing airplane are entirely different than are the airplanes of the older type which are generally known as straight-wing airplanes. They are vulnerable to directional changes which are referred to by many people as Dutch roll.

A sudden loss in thrust on one of the outboard engines, for example, is of very serious consideration to the pilot because the lever arm, the thrust involved, the position of the engine with respect to the wing, creates a considerable unbalance in terms of thrust, and it must be compensated for by control deflection.

Therefore, it is encumbent upon the pilot to maintain certain minimum airspeeds during takeoff and climb-out as well as approach and landing that will enable the pilot to maintain control of the aircraft in the event of loss of an engine, so I think we can state, without any doubt in anyone's mind, that we have just about wrung out all we can wring out, from a purely operational standpoint, the reduction of noise.

Now, from the standpoint of how the operating crews can best do this on a nationwide basis, in my opinion we must stay away from the problems that exist as far as surface operations on the highway are concerned, in that every city and town in many States have different operating rules and regulations as far as the roads are concerned.

In driving, in many cases, I spend a good bit of my time trying to find out whether I am staying within the rules and regulations of this State, this city, or this town. This is not a practical function as far as operating an airplane is concerned.

Some pilots are qualified in as many as 40 to 60 airports. We must attempt to standardize our operating procedures and our rules of the air as compared to rules of the road, if we are ever going to attain a reasonable semblance of orderly and safe operational transportation, and I highly urge that this be a function of the Federal Aviation Agency who, in the development of these processes, would coordinate their effort, investigation, with all of the users of the airspace in the hope of developing a full and complete program that is standard in nature over our entire country at large.

I have a very strong feeling that this is capable of accomplishment. I also would like to state that, in my opinion, the reduction in noise is going to be a slow, tedious process. I personally cannot visualize an immediate overnight breakthrough in this area, and I think it behooves all of us to work to the best of our ability, to be patient, to make every effort that we can.

Later on, if I can answer any questions I will be glad to do so. If I don't know the answers, I will tell you I don't know.

General COOK. Thank you, Mr. Ruby. Would you care to comment on international procedures? You have talked about internal domestic procedures. We have a problem where our trunk carriers are also operating internationally.

Mr. RUBY. Well, yes. It is a recognized fact that we in the business and the Federal Aviation Agency are not in position to exercise control over procedures and methods in foreign countries.

However, by application of our methods here, and when we come up with a better method, many people have seen fit to adopt them. Through the International Federation of Airline Pilots Association we have been able to distribute information which we have developed in this country to the pilots of other countries, excluding those of the Iron Curtain, and have had some influnce upon operational procedures of foreign carriers, though not in a demand fashion.

It is rather an exposure to methods which they finally may feel that they can adapt to their operations. This manner I think is the only way that we can influence what we may find to be a good method of doing things, and, conversely, we can learn something from other people.

It is incumbent that we keep our eyes open, do the best we can, and make every effort to come up, as the man says, with a better mousetrap.

General COOK. Thank you. Mr. Halaby, Mr. Ruby has made certain suggestions with reference to FAA. Would you care to comment on those?

Mr. HALABY. Yes. Thank you, General Cook. I think we have a serious problem here. It is being taken seriously. It is being intensively researched and defined and those vigorous and flexible actions that are currently feasible are being taken as we see them. We hope out of these hearings, which this committee and its chairman have so wisely set up on a broad and objective basis, will give us new ideas.

Over the past 2 years an increasing number, a very substantially increasing number, of man-hours in the Federal Aviation Agency and a very sharp increase in the number of dollars in industrial contracts have been applied to the problem.

For example, in the roughly 22 months I have had responsibility our obligations have increased from a very low amount, less than $100,000, to $265,000 for the full fiscal year 1961, to $900,000 in fiscal 1962, and almost $1 million in the current year for work directly applicable, most of it research into noise reduction.

The number of people has increased particularly around the major metropolitan airports, and our expenditures have doubled, so that the obligations have gone up almost three times and the expenditures have doubled.

A total of about $1.5 million is obligated and programed at work on this problem. A great deal of it is on the supersonic transport because there we will have a decade of opportunity to do something about designing as much quiet necessary into the engine or as little noise as can be done.

All other aircraft have been in operation or are so far in their construction and development that there was no real opportunity for me and this administration to do much about the design end of the problem. I don't hold out, as Captain Ruby has indicated, any miraculous, immediate solution because there are billions of passenger-miles and ton-miles being flown by our air carriers and our general aviation aircraft, and this number is increasing each year, and you can almost put it down as axiomatic that for every mile flown power is generated and for every bit of power generated noise is generated, and it is almost in direct proportion.

Now, your committee has wisely looked, as I see it, in the resolution of the full House, at both the noise nuisance and the hazards to life and property underneath. Our feeling is, and it is one that has certainly grown on us in the last couple of years, that we have the primary responsibility to the traveler, the shipper, and the neighbor.

In other words, more and more, as I see the job in Government, particularly in the FAA, it is to consider first the traveler, shipper, and neighbor of the airplane and the airport. Supporting that is what you might generally call the aviation community, and it is a pretty important community in the life of the United States.

It contributes over $10 billion a year in gross national product. There are somewhere between 750,000 and 1 million people directly employed in it, depending on how you count, and there are many, many more, probably twice as many more, supporting those people in the airplanes, on the airports, and the factories.

Our exports of aeronautical products are one of our principal means of earning dollar balances of payments and, as Captain Ruby said, what we do here is watched in London, Paris, and Rome, and

all over the world, so we have a great opportunity and a great responsibility.

We have a regulated private enterprise industry here. It is often forgotten when someone is looking for a receptacle for blame to recall that our aim is to have and maintain a private industry, a private enterprise activity, in aviation, and to have that regulation and no more required to protect the traveler, and the shipper, and the public underneath.

We don't in the FAA run but two airports in the United States, and those are Washington National and Dulles International, and we are not too eager to run those two in case anyone has any doubts about that. I can reassure him on that point.

But we have taken that duty, and we are trying to carry it out as carefully and as efficiently as we can. In this aviation community that can do something about this problem there are quite a number of individuals and groups. The first is the airplane manufacturer and the powerplant manufacturer.

I think it is fair to say that, having been spawned out of a military necessity, most of the air transport engines and airplanes were built primarily for power, speed, load-carrying capability, and, fortunately, much of this effort was applicable to our civil economy and as a result we have engines and airplanes that were designed for, you might call it, economic efficiency based on, first, military parameters. We have adopted them.

They have suppressors, as the Captain pointed out. Even a new generation of jet engines, for example, that are now actually feeding back into the military program because of their higher thrust and lower fuel consumption as well as their lower noise generation, those are being developed as the second generation of jet engines, but there is the beginning and there are more things that can be done, and we have been talking and pressing and urging the aircraft and powerplant manufacturers to do more, particularly with the upcoming models and, of course, the very powerful supersonic transport that we may develop.

If you take the airplane and powerplant manufacturers together as one group, the second group is the owner of the airport. More often than not he is a local political authority. He is a county commission or a tristate port authority, a city.

Very rarely in the airports we are talking about is a private owner of an airport involved. We then have the operator, and he is usually a civil servant, a man appointed usually; very rarely elected.

I doubt he could hold an elective job in this tough position. He is appointed by a civil political authority at a salary, and more often than not he is a civil servant according to the local or State regulations. He can do something and the owner of the property can do something because they usually have between them the capability of buying land through eminent domain, condemnation.

They usually have or can get from their superiors, zoning authority. They can pass ordinances and they can develop highways and other land utilization that at least ameliorates the problem.

The next man is the mechanic and he has been, by his employers, the air carriers, given instructions about what hours and places he may test the engine and airplane that the captain would take out next

morning or the next hour, and those have been designed in such a way that there are large and expensive noise suppression engine cells, remote areas, costly and isolated areas, for runup, and he can do something about it and is doing something about it.

The dispatcher can dispatch the airplane at a load and on a route that will make it heavier or lighter, and that will affect the takeoff distances and the climb-out profile. Then the captain is covered, the pilot, the copilot, the flight engineer, the flight attendants, who form the crew of the airplane, who have it from the moment the ramp gate is closed until the next one is opened.

Then at this point the Federal Aviation Agency comes into the picture from the time that the captain calls for taxi clearance, and I think it is proper and accurate to say that a great deal of effort, many, many thousands of man-hours, have been devoted all over the country to trying to get that combination of standard national procedures that take into account local conditions for the taxi-out to the runup position.

I believe Captain Ruby has covered that and I won't go into great detail on it, except to say that we agree with him that it would be desirable to have standard procedures.

It is very difficult for the crew to have one kind of procedure at one airport and another at another, a third at a third, and some of these crews are called upon within the space of a single mission to land at five or six airports, maybe even more. Then after takeoff clearance is obtained and the aircraft is in the air there is air route traffic control, and that of course is under rules that relate primarily to safety, but in recent years the takeoff, climb-out, and en route cruise have taken more and more into account that have important public interest in those neighbors of the airplane and the airport who never set foot in an airplane.

We would not for a moment say that everything has been done that everyone has wanted us to do. We do not believe that we should jeopardize the safety of the traveler in the airplane, the crew in the airplane, and those beneath the airplane from death or injury in order to provide serenity.

We believe that that must be the highest consideration at all times. If we have erred in that respect we will correct it. I do not know of a situation at present in which a fair, objective judgment shows that we are endangering life or limb in order to avoid irritation, but I do believe, as Captain Ruby has said, that we have gone about the last mile, or, as he said, we have wrung about as much out of these procedures, in any greatly more satisfactory way, as we can.

If there are improvements we want to hear about them, but we will always adjust the balance in favor of safety when it conflicts with irritation.

The Congress of course has the power over the executive branch to pass legislation prescribing what is the national will in this matter and we will naturally assist in every way if that is the wish of the Congress to make it as precise and as enforcible as we can.

We believe that progress is being made. We believe that of the very large number who are paid, who are supported, who are given mobility and convenience, who reap dividends, whose property values have greatly increased, who enjoy all the benefits of the airplane, the vast majority feel that they are being protected, but even the tiniest minority in this country has a right to be protected.

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We believe that the airplane and those who operate it, and manufacture it, and regulate it have done an extraordinary job of protecting the lives and limbs, though perhaps not the ears, of the American public.

I am advised that in the period 1950 to 1960 when the train, the automobile, the bus, the truck, were killing thousands of people, and injuring many, many thousands more, the airplane caused fatalities to only about 75 people who were third party innocent bystanders.

I feel very strongly that the more we do for air safety, the more we do to take some of the fear out of the irritation. I think that many of the citizens whom you gentlemen represent are not just irritated by the noise. They are anxious about being hit. For example, I believe it is very poorly understood that the jet powerplant is now on the average providing to be a more reliable, that is, less failures, less fatalities, in proportion to its use than the propeller powerplant.

The jet has meant danger as well as noise to many people. The facts are that in terms of fatalities in turbine-powered aircraft, in terms of failure rate for hours used, the jet is showing itself to be safe and efficient, and in many cases it is showing itself to be less noisy than the propeller airplane, but a very interesting thing has happened.

With the coming of the jet this country has entered into a greater period of anxiety on all fronts. We have more internal problems. We have more external threats. We are more anxious as a people, and anxious people are more easily irritated people. And it is not just the jet. It is not just the fact that people are flowing and flooding in around airports because of the convenience, and the jobs, and the mobility provided, but it is also because we feel a combination of irritation and frustration and fear, and I guess the Federal Aviation Agency is only a tiny part of the effort to provide all of our people with a higher sense of safety and security.

I will be glad to go into any details of our program. I could reminisce at great length about the airport I learned to fly on 30 years ago, and I wish that I had bought about 30 acres of land there at $300 an acre because it is now worth $200,000 an acre.

Will Rogers used to find it by flying the nearest high tension line and where it intersected with another high tension line he knew he was within a mile of Mines Field, which was a bouncing patch amid lima bean fields in the early thirties and is now one of the most highly concentrated areas of industrial, aeronautic, and other activity in the world; but those economic developments have brought with it these problems.

We are working on them much more intensively now than 2 years ago, with much greater money and support and public interest. We hope to learn some lessons from these hearings.

General Cook. Thank you, Mr. Halaby. You forgot to mention, I think that at the intersection of those high-tension lines there almost always was a cemetery nearby in the older days.

The Civil Aeronautics Board, as well as all of the rest of the agencies concerned with aviation, is extremely interested in safety, and, at this juncture, I believe it would be appropriate to ask Mr. Boyd to discuss the interest of the Civil Aeronautics Board in safety in connection with noise abatement, or any other statement you want to make.

Mr. BOYD. Thank you. I think maybe one very crucial group of people the chairman of this committee might like to hear, who I don't understand to be represented at any of these panels, would be a group of psychologists, because I think there is a great deal to what Mr. Halaby said about this anxiety psychosis that seems to dwell over a great many people nowadays and there is a lot of psychology involved in this business, I am thoroughly convinced, although I am certainly not competent to discuss it in any details.

I think it is very true that to many people who are concerned about aircraft noise, noise in itself denotes danger. Actually the reverse is true. As long as you have the noise coming out of the tailpipe of the propeller, everybody is all right, but when that noise quits there is going to be trouble in a hurry.

Noise also represents a nuisance, and I think what we are all groping for is trying to develop some sort of a definition of how much noise does constitute a nuisance, and this is a very difficult task. I don't know how one would approach it.

The FAA, I know, has done a great deal of work in measuring decibels of noise, but it is very difficult to tell some householder that 115 decibels is tolerable while 125 isn't, because very few people are going to make that kind of a quantitative judgment. I do think that it would be well to point out that noise is not a problem about which nothing is being done. We are not facing a new problem.

We are facing a new evidence of the problem with the advent of the jet aircraft in commercial aviation. There is not doubt that the noise difficulties have skyrocketed since the jet came into regular passenger service.

In that connection it does see, however, that we have to really understand the problem before we can develop solutions, but on noise abatement as such, I had the fortune to be a member of a noise-abatement committee in Miami in 1961. At that time the civil aviation authority people who then ran the airport, the port authority, the carriers, and the pilots, and the military, which I represented, agreed that takeoffs for noise-abatement purposes would be made on runways going out over the Everglades, which, in effect, constituted a downwind situation for the takeoffs on many aircraft.

This was an expensive proposition to the air carriers because the plane had to be on the ground longer before it could take off than it could if it were flying into the wind. Similar noise-abatement patterns have been developed before or subsequent to 1951 in every major airport in the United States.

Carriers have spent a great deal of money on noise suppressors, which creates an economic penalty any time they are attached to the airplane. They have accepted load limitations in some airports during some hours which is a tremendous economic penalty for any carrier to operate. One of the things that I think we need to do is to get, in perspective, the fact that we are talking economics as well as noise here. The two are completely interrelated, and it has often been said that the only safe airplane would never fly.

Now, if you talk in terms of absolutes, that is true. I think there is little doubt that the mind of man is ingenious enough to devise an airplane that would be absolutely safe, but it could not be used, certainly could not be used for commercial purposes, and aviation is not an end in itself. It is a means to an end.

It is the web that tends to tie together, along with communications, the entire economic and social life of this country and, to a considerable extent, the world today. We have to have aviation, and we have to have it in an atmosphere where a majority of the people who have a desire or need to travel have the ability to do so within their means.

As I said, with the advent of the jet aircraft we are getting more and more of a noise problem. As we gain experience in the use of the jet there, obviously, I think, will be more things we can do. At the moment, I believe we have reached the limits of what our experience tells us can be done safely. As times goes on, with greater experience, I think we will learn more things which will enable us to take additional steps. However, we are not going to be able to take any steps that will eliminate noise. As I understand it, the only noiseless machine that could be made to produce power, or relatively noiseless, would involve the production of steam, and I can't visualize that we are going to have nuclear powered aircraft flying commercial airways within the next few years.

I think it is also fair to say that as one lives with noise one tends to develop a greater tolerance to it, and I am certainly not advocating that we tell the people who are complaining just to sit down and shut up, that within 4 or 5 years they will get used to it, but I do believe that at time goes on there will be a greater tolerance, and this is an area that goes far beyond aviation.

The whole of our life today is one of greater concentration of people, and with the greater noise, and it is, I think, to most of us who grew up in the country, a very unfortunate and disturbing thing, but we do learn to live with the greater amounts of noise and I think there is room for more tolerance of noise in the field of aircraft.

Safety has got to be the primary preoccupation of those people involved in aviation. It always has been and it must remain so in the future. I don't think that we can afford to give 1 inch, or give any encouragement to any belief that we will forfeit the slightest degree of safety in order to satisfy noise requirements.

This then leads to the question, it seems to me, of whether you restrict or eliminate the operations of the airlines primarily, and it would also involve general aviation and also military.

I don't see how we could adopt a double standard on this thing. If noise abatement is to be the primary objective, then I think we have to consider that whatever restrictions should be placed would have to be placed on military, commercial, and private aviation simultaneously and to the same extent.

There is the possibility of restricting the hours of operation at airports. The consequences of this, from an economic point of view, are, to my mind, so grievous that it is not a fair possibility. I understand that Mr. Wiley will discuss this in some detail later on so that you gentlemen may have an idea of what is involved. We have a generally increasing standard of safety in commercial aviation. The figures for the first full 9 months of this year are even better than those of last year.

Whether this will continue through the balance of the year I cannot say. But it is due in part, without any question, to the advent of the jet aircraft, the jet, the turbine engine, which has proved to be the simplest and the finest engine that the mind of man has yet devised.

It is trite, I know, to say that progress only comes at a price. It is also true. I do think it is fair to point out that the carriers have been paying the price in noise abatement, in sound suppressors, as well as the public adjacent to the airport paying a price for the better aviation facilities that are available to them today.

We are certainly prepared to cooperate in any way that we can to further the development of aircraft operations in and around airports so that they can be quieter than they are today.

I think that this can come about, to some extent, in the future as we learn more about these machines and how to operate them. There will be no breakthrough; there will be no dramatic changes of any kind. And I think we have to urge more patience and more tolerance while continued efforts are made to resolve these problems as we understand them.

General COOK. Thank you, sir. Would any of the panel members like to ask any questions of either Mr. Halaby or Mr. Boyd at this point?

The CHAIRMAN. General, before it is over, sometimes it occurs to me, and maybe others have some ideas too, that I would like to hear more discussion about this standarization that was referred to by Mr. Ruby a moment ago, about any administrative action that has been taken either by the FAA or the CAB, and the status of contracts which the Government has provided. I don't mean to necessarily interrupt for it at this time, but before it is over I would like to have some comments about it.

General COOK. I believe this would be a good time to do it, Mr. Chairman, while it is still fresh in our minds. Would you care to address yourself to that subject, Mr. Halaby?

Mr. HALABY. Yes. Taking the second question first, Mr. Chairman, the principal contracts that we have out at the present time are as follows: one which we share with the NASA for approximately $100,000 is with Bolt, Baranek, and Newman to establish a revised perceived noise decibel scale, taking into consideration the effects of pure tone components of noise from jet engines, helicopter noise, and evaluation of sonic boom.

This revised PNDB scale portion of this contract is in the final drafting stage at present. In simple terms, this contract was to take into account all of the previous work involved and experience in getting a measurement so that you could take an instrument and measure with.

That took into account more recent developments in jet engines, helicopters, and sonic boom, and that study has just about become available. There is a $40,000 FAA contract with a firm called Polysonics, Inc. to obtain actual noise profiles.

Contours include takeoff and landing profiles of various civil aircraft. This information is to be furnished and converted to the revised PNDB scales for updating the FAA planning series item No. 3, aircraft noise abatement. If I may offer, for the committee and the panel's record, the current FAA notices and advisories, and instructions to our own employees, I think they might come well in your record at this point.

These are the procedures and planning guides that we publish all over the country in relation to airport traffic patterns and aircraft

noise abatement procedures. They cover all of the work published since the FAA was formed, some of it before my time, some of it since.

The first two contracts, therefore, are designed to give us new, more precise, more comprehensive, measuring methods, and, second, to apply those to the various airplanes that are in the system at the present time to enable and updating of these documents, which, if the chairman wishes, I can submit for the record.

The CHAIRMAN. Let it be received for the benefit of the committee and the panel at this time. We will determine later if it should be placed in the record.

(The document referred to may be found on p. 295.)

Mr. HALABY. We have another $10,000 joint contract between the FAA and the Air Force with the firm of Bolt, Baranek, and Newman to convert polysonics data on commercial aircraft and military data on military aircraft to the revised PNDB scale.

The updating of these documents that I refer to will permit individual airports to be analyzed in relation to specific types of aircraft operating at these airports and a technique can be devised to take into account the impact of noise on adjacent communities caused by variables such as number of operations, time of day, type of aircraft, and the like.

Another contract is a $40,000 FAA contract with the same firm, Bolt, Baranek, and Newman, to prepare an authoritative document covering all aspects of aircraft noise. The general purpose of this document is to provide a progress report on what has been done and to explain how we in the aviation community have acted in carrying out our responsibilities.

This is a public information and education document and will emphasize, in layman's language, the engineering, aeronautical, industrial, and other technical aspects of the problem in order to better educate those who are interested.

This should be available in January.

A $540,000 program has been prepared out of the $31 million which the Congress has voted for the supersonic transport program. This is primarily oriented toward seeing to it that everything possible is done if and when the United States builds a supersonic transport to see that noise has been reduced to the irreducible minimum and consonant with the purpose of the aircraft.

There are considerable aspects of that which I can go into if the committee wishes. A $10,000 contract for engine cycle studies was performed last year in which was considered what would be the most efficient in terms of commercial and noise cycle, that is, whether it should be a ramjet, a turbojet, fanjet, or some combination. We have a large number of men working, particularly at Idlewild, and O'Hare, and other large fields, whose job it is to handle noise complaints, to collate them, to try to determine the source and difficulty, and this, of course, is done in cooperation with the airport owners and operators.

We have in mind for fiscal 1963, out of primarily the supersonic transport funds, an additional program involving at least two big areas of study, first, about a half million dollars on flight profiles and aerodynamic characteristics. It is possible that there may be a better way to take an airplane off than the one which has proved so successful in recent years.

If it is possible we will try through working with our own FAA aircraft and with engine and aircraft manufacturers to develop it. For example, larger amount of thrust might be used for a shorter amount of time, but this is a highly experimental program and it is of unknown improvement. We are studying various new inlet configurations. Much of the work has been done on suppression at the aft end of the turbine engine and we are now working more on various ways in which the front end, the inlet, might be configured so as to reduce what is usually the higher frequency whine of the compressor into the engine.

We are also studying in what ways these suppression and reduction techniques would affect economics. The fiscal 1963 program also contains a quarter of a million dollars to support a 2-year effort aimed at determining the feasibility of establishing a reasonable noise standard for use in guiding engine and airframe manufacturers, land use, and possible certification action on the part of the agents.

Negotiations are still underway to insure that the proper objective of this program is defined accurately so as to get a real result. We are working through the National Research Council and with the NASA on this program. I think it is fair to say that even though all of this money, totaling almost a million and a half dollars, is either at work or will be at work, we are also doing work on the sonic boom, which in those areas near military operations is a very serious problem.

The amount of money being spent on that in the military services I am not sure about, but I know that we have been involved in a study of almost $100,000 in cost. Despite all this we do not know how accurately, day in and day out, foul weather and fair, and at all airports and under all circumstances, to measure noise as you would speed or altitude, in a standard objective way, and we certainly haven't found out how to measure the tolerance of the neighbor of the airport.

I am not sure we ever will because what is one man's nuisance is another man's livelihood, and the train going by 15 feet from a kitchen is acceptable. An aircraft climbing out 2 miles away and a half a mile high is unacceptable.

A hotrod accelerating from the corner is acceptable, but a short-staged Connie 2 miles away, 2 days after an accident is frightening. A bus accelerating at 112 PNBD on the corner of 57th and Fifth is commonplace, but an airplane approaching that level must throttle back and coast over a particularly irritable area.

On a hot day with the windows wide open one PNDB causes a reach for the telephone. On a cold day with the windows closed another causes that reach. When the cloud cover causes a radiation back to the ground it is one thing. With the mountains around, when the wind is blowing one way or the other, there is variation, and as Chairman Boyd said, we are in an area of psychic as well as science here. I think the chairman asked for some more on standardization.

The CHAIRMAN. I think perhaps it might be best to go on with the penal first, General, at least to get an opportunity for a few others before lunchtime.

Mr. HALABY. The principal answer to that, sir, is involved in these documents and they are guides not regulations.

The CHAIRMAN. There will be some questions on these items a little later I think.

General COOK. Would any other member of the panel like to comment on Mr. Halaby's remarks or to add to them?

Mr. TIPTON. Yes, Mr. Cook.

Mr. Chairman and members of the committee, I will outline the best that I can what airlines have been doing about the noise problem.

You have to start, I think, with a recognition of the general approach the airlines have had to take to this.

First, they have to fly safely. They have to perform a good public service. They have to meet public requirements.

That is our business.

If we do not do it, then we are no good. We are bound, we think, to avoid, to the extent we can, annoying people. So we have those three considerations that affect the airlines' approach to the noise problem.

This began, as I recall, with us in the early fifties when we began to work on the noise problem, and in approaching it, we, of course, had to admit and understand at the outset that there were two ways we could combat this problem.

(1) We could reduce the noise at its source, or (2) we could take the noise away from noise-sensitive areas.

There are only two ways of doing it and we had to do the best we could with both.

Taking the first one first, reduction of noise at the source, as to the piston airlines during that period, it is still the case, there was not much you could do in terms of changing then the fundamental design of our piston airplane.

There was very little, if anything, you could do in dealing with that problem, the reduction of the noise at the source. They were powerful planes. They were built and operated under a very severe requirement as to their operating capability and they made a lot of noise and there was not a thing we could do with the engine so far as those aircraft were concerned.

When the jets were ordered, the noise problem was an apparent one. The military had encountered the problem and we could see that we were encountering it, too. So, one of the major considerations in ordering the design of these aircraft was the development of a noise suppressor that would go at least part way in reducing the noise of the jet.

It cost the manufacturers approximately $50 million to design the noise suppressors.

As of this time, covering about 325 jet airplanes, the airlines have spent $73 million to buy and install them, and we estimate that it costs us $36 million each year to carry them. That's the weight loss. So that was done and that was our effort to reduce noise at the source. The suppressors made a measurable improvement, but it is perfectly obvious to all of us they did not solve the problem and we still have it.

So, moving now to the other way of combating noise, and that is to take the noise away; at a very early time that appeared to be the most fruitful way of dealing with the noise problem, was try the best we

knew how to get our airplanes as far away as possible from the airport neighborhoods that were complaining, were suffering from the noise.

You have to start out with the notion that the airlines are bound to serve the cities. They are bound to serve the airports at the cities. Our problem was to develop procedures by which we could get the noise away. Machinery was set up, committees usually, cooperative committees with the pilots, the airlines, the airport managements, to concentrate on the problem of developing noise-abatement procedures that would take the noise away the best way we could. Those procedures were designed quite a number of years ago and they have been in part successful.

Just as an example, a noise-abatement procedure might cause you to use a runway that your operation would not normally cause you to use. It might cause you to make turns at times and at places that you would not normally make a turn for.

Those noise-abatement procedures have been developed usually, airport by airport, over these years and have been, I guess you can say, perfected.

Sometimes a noise procedure looks like it would be very useful and helpful to a community but you are blocked because you cannot conduct that procedure safely, and that always is the consideration that you have to meet.

It is a costly thing for airlines to do that because they are required to undertake the use of procedures that the normal economy of their operation would not require them to use.

Of course, in operating these big airplanes time is money and money on a very large scale. On an average, if you take jets and pistons and the larger transport aircraft I suppose you could say—at least our figures indicate—that a minute costs you $10, and there are 100,000 takeoffs. That's a million dollars in minutes that result from operating your airplanes differently in order to accommodate the noise problem.

There are about 60 airports where we have these procedures in effect.

The reason time is so important here is that the noise procedures require you, as I say, to do different things than you would normally do.

You have extra taxi time to get to a preferential runway. You have waiting time because you lose your flexibility in assigning takeoffs.

In other words you concentrate all the traffic on the preferential runway rather than being able to use others and then, of course, there is extra time in getting into cruise position from the preferential runways. Probably the most important and expensive thing you have actually results from the performance reduction caused by carrying the suppressor.

In addition to that we have, as an industry, sought to organize ourselves with other agencies involved in this so that we can get the best brains and the best effort of everyone concerned concentrated on the problems.

Basically, our organization consists of local committees at the airports where there is a noise problem, committees made up of pilots, airlines, the airport management, air traffic control experts, and others who create themselves into a committee for the purpose of constant study of the noise problem at that airport.

That is the major way that we try to deal with this.

Those committees are in a position to get complaints. As Najeeb said, the FAA gets the complaints in many areas. In other cases, the committee itself gets the complaints, and then we can spot the complaint areas, understand where the problem is, and then study to see whether you can do anything about it.

We went one step further about 2 or 3 years ago. I guess it is 3 now. Recognizing that the noise problem had become a nationwide problem and that there was a great need for cooperation on a broader basis to deal with the noise problem, the aircraft manufacturers, the Air Line Pilots Association, and ourselves, created the National Aircraft Noise Abatement Council. The purpose of that council is to coordinate all of our efforts in the solution of noise problems and to work as a group with the FAA particularly in dealing with the noise problem to encourage similar work in other local communities.

One of the major functions of NANAC is to make certain that in a local community where there is a developing noise problem, the affected persons there get together based on the experience developed all over the country and are able to help out the noise problem in these communities. It is a process of spreading the experience all over the country.

I guess all of us have said up to now, and I will say it again, that we have run out of benefits to be gained from the noise-abatement procedures. We have gone about as far as we can go with noise-abatement procedures, and that I think we have to recognize this fact.

Necessarily, of course, those procedures are now and will continue to be constantly under examination.

If we find something we can do safely, we will do it.

We have in the past and we will do it in the future.

In the discussion here I have described very quickly the activities of the airlines and their ideas as to how deal with this problem.

One of the things I have not dealt with, but I am sure questions frequently arise about it, is why not off-load your airplanes, operate them light loaded, in order to climb faster and thus avoid some of the noise, and I might as well just pick that up so we can all look at it.

We start out with the assumption that we have to provide a good public service. That is our business. That is what we have to do.

These airplanes are very high-performance airplanes. They are very expensive. The ability to carry a load with them is basic to the economy of the industry, and consequently we have rejected the idea of reducing the load on the airplane because it destroys the economy of our industry and we could not perform a good public service. We have to recognize that if that is done at one airport, quickly it would be adopted at other airports, so that the efficiency of the industry would come down nationwide. Therefore, that is really not an available method for us to help deal with the noise problem.

I will touch upon one subject just very briefly, which is the idea that has occurred to some, of limiting or eliminating the use of airports at night. There, again, you have in that the seeds of strangulation of the industry.

Mr. Wiley is going to talk about that shortly, and it is a very important phase.

So there are things we have done and I think done well, and things that we feel we cannot do. But one thing, out of all these several things, that has to be clear is that, based on my experience, and I have been deeply involved in this for a long time, I can assure this committee that the airline industry has not been acting in arrogant disregard of the interests of our airport neighbors.

I think what I have said already proves that.

Millions and millions of dollars have been spent and thousands and thousands of man-hours have been spent in order to do the best we can to keep from annoying people.

The second thing that gets to be clear is that there is not a present complete solution consistent with public service and safety. There just isn't, and I want to endorse thoroughly what Captain Ruby said in pointing out that this is going to be and is a slow, painstaking process in which all of us interested must work, but we must not leave the impression that fast solutions are available.

Thank you.

General Cook. Thank you.

Would any other member of the panel like to ask Mr. Tipton questions or comment on his presentation? Mr. Wiley.

Mr. Wiley. Thank you, General.

I do not have a question for Mr. Tipton, but I have one that I think perhaps with Mr. Ruby available he might be able to clarify for us.

Those airport operators who have water approaches available to their airports; that is, whose airports have water around them on one or more sides, frequently receive, and the FAA people with whom we work closely at those airports frequently receive, suggestions that all landings and takeoffs be required to be made over water. I believe that many people do not understand the effect of wind direction and velocity on flight technique that does make it impractical or unsafe to follow that procedure in all cases, and I wonder, Mr. Chairman, for the benefit of the committee, if it might be well with Mr. Ruby here to ask him if he could elaborate on that point.

Mr. Ruby. Yes. All airplanes are sensitive to wind direction and velocity and the last plane, which is the sweptwing jet, is even more sensitive than was its predecessor.

The effect of controlability must be transferred from the air-surface controls, on the one hand, to the ground-contact object on the other, which are the wheels and associated brakes.

This occurs on a takeoff in terms of the ground-contact object to the air-surface controls and on the landing it goes in the reverse order.

Unfortunately, the air-surface controls on most transport airplanes do not become appreciably effective until some 50 or 60 knots of forward speed is attained, and in some designs it is even higher.

Consequently, the effect of wind means that the pilot is hard-pressed to transfer directional control, for example, from the effect of the landing gear and the nose wheel steering to the air controls until he reaches an effective control speed.

This is more easily attainable with a dry surface runway than it is one which is wet or icy.

Aircraft tends to weathercock into the wind on a slick runway surface. It also gets itself into an attitude where it is trying to drift

and the pilot is trying to stop the drift. Also the relative ground speed is directly associated with the amount of wind and its direction, and as the airplane has become larger and the weight is increased, the speed, for example, at liftoff has become quite high. As a matter of fact, on jets that are operating in the general weight range of 300,000 pounds, we are talking then of a speed in the approximate vicinity of 150 knots at liftoff.

The time to accelerate to this speed is consequently greater.

Well, if we can reduce the ground speed by the element of wind we have accomplished two things: We have gained a greater altitude over a fixed point at the boundary of the airport and thereafter, and we have also improved our safety capabilities in view of the fact that the total ground speed is materially reduced rather than added to as a direct effect of, say, a headwind, on the one hand, and a tailwind, on the other hand.

Unfortunately the jet's directional control is entirely dependent on the landing gear in the terms of the ground contact until directional control is reached with the control surfaces.

With propeller airplanes some differential thrust is attainable on a rather instantaneous time element.

This is not true of the jet engine.

Your ability to change thrust output on these engines is not an instantaneous situation. Consequently, the problem of operating jets in an excessive crosswind condition or in a downwind condition is extremely undesirable from a pure, out-and-out safety standpoint.

In recent times, we have, on certain conditions, such as slick runways or poor visibility conditions, chosen to restrict the crosswind component to no more than 10 knots and no more than an 80-degree angle from the takeoff path, the reason being as we operated these airplanes and got more acquainted with what their limitations were and what the pilot's ability was to handle these limitations, we found that it was necessary to stay within those limitations if we intended to maintain any degree of safety in operation.

Conversely, propeller airplanes can accept crosswinds of a somewhat greater magnitude. Each airplane type and its particular characteristics have a different response in this area.

Obviously, from the pilot's standpoint, he would rather take off over water or open fields than he would over congested areas, and he would prefer his approach in this manner. Unfortunately, we have to recognize the wind influence and make our judgment based on what this wind influence is and accept our operational selection of the runway accordingly.

There is another facet of the thing that further complicates the problem, and that is a gusty atmosphere. This taxes the control problem to a much greater degree, and with air being an elastic medium and also invisible, the pilot is not able to foresee this in advance. He can anticipate it based on experience, but this is not a visible object that you can see. Therefore, prudent operating practices dictate that the pilot exercise his best experience and try to avoid the pitfalls that may be associated with such exposures.

Consequently, we are obligated to give more than passing reference and consideration to the wind direction and velocity when it comes to

the safe operation of any airplane, and I have said before the jet just happens to be a little more critical in this area than was its predecessor.

General Cook. Would anyone else like to ask Mr. Ruby a question on operation?

The Chairman. I think perhaps at this time, General, we might suspend for the noon hour.

In the meantime, I would like the record to show we are pleased to welcome our colleagues from New York, Mr. Rosenthal, Mr. Addabbo, and Mr. Halpern. I also want to welcome our friend and colleague from Illinois, Mr. Pucinski.

We are glad to have you gentlemen with us during the discussions here today.

Let me also take this opportunity to announce to you that today is the birthday of our colleague, Mr. Williams, who serves with us on this committee. We are glad to extend to Mr. Williams, felicitations on this occasion and wish him many, many happy returns of the day and many more such days in his life.

Mr. Williams. Thank you.

The Chairman. In other words, if I had the capability, I think I would sing "Happy Birthday to you."

The committee will recess until 2 o'clock, at which time we will come back and proceed with the panel discussion.

(Whereupon, at 12:22 p.m., the committee recessed to reconvene at 2 p.m. the same day.)

AFTERNOON SESSION

The Chairman. The committee will come to order.

General Cook, you may take up where we left off when we recessed for lunch.

General Cook. Very well, Mr. Chairman.

We last heard from Mr. Tipton on what the major carriers have done and are doing and plan to do about aircraft noise, and a great deal about the economics of the problem.

I would now like to call upon Mr. Barnes to briefly tell us the position of the very important but smaller operators, how they are affected by the noise problem, and what they are doing about it.

Mr. Barnes. Mr. Chairman, gentlemen, the local service airlines serve, approximately, some 550 cities in the United States, and about 400 of those are served exclusively by, in terms of scheduled services, the local service airlines. The balance of the cities are also served by the trunk airlines.

I think it would be fair and fairly logical to state that there is a definite relationship between the problem we are here to discuss today and the size of the city.

As far as I know, we have very few noise complaints, in the majority of the cities served by the local service airlines. I think that this bears analysis, which, if the committee will permit me to do, I would like to do later.

I think that the problem becomes much more grave as we proceed toward the larger metropolitan areas. And this, too, I think centers on perhaps a deserved analysis of what is really causing this problem.

If the committee will indulge me, I would simply confine my remarks as to what we are doing to saying we are cooperating in every way

possible with the bodies that are actively engaged in working on this problem.

I think we share in the problem, because certainly the continuation of air transportation of a scheduled nature in these large city airports is important to us, and it is important to the city that we serve, even though they do not appear to have the problem. Hence our interest in this area.

I want to tread very timidly into an area that was touched on twice before here today, but I think in the final analysis it has been the reason why this panel has been called together, and deals with the problem that caused the House resolution, and you gentlemen's concern with this.

This deals with the area of public opinion.

I liked what Mr. Tipton said when he said that the industry is not proceeding with an arrogant disregard to the public—and this is true. This is evident, I think, by the amount of money Mr. Tipton cited that has been sent by the manufacturers, by the airline industry, by the airport operators, and I think that Captain Ruby, in detailing how far they could go, and how far the pilot was going to ease this problem—that is also evidence of concern with the matter of public opinion shared by all of us.

But I think the area I want to probe a little bit is just what it is that the public is concerned about—because if it is true that, as Mr. Halaby has indicated—and I am sure it is—that great effort is being made to improve the technology through noise suppressors, through studies, through other things, to reduce this noise annoyance, and if it is true also that the economic life of our Nation and our communities depend upon the continuation of a healthy, unfettered, free flow of commerce, then we are face to face with the problem of what best can be done about this obviously growing public opinion.

I think Mr. Halaby touched on a difference that has to be made between safety as a choice over that of serenity. I think also that another phrase—and I hate to quote him as much as I do here—but he said what is one man's annoyance, is another man's livelihood. I would paraphrase that a little bit, because the man who is annoyed may also have his livelihood from the person who derives his livelihood directly from that airport.

Chicago, I think, is a case in point. And when I said I approach this timidly, I am sure this is evidence of what I mean.

There was a very vociferous group around the Midway Airport that had much to say about the noise problem, about the activity of Midway Airport, at one time the world's busiest airport.

There is not today a scheduled airline serving Midway Airport. And it is my understanding that that same group now, because of the economic blight that has hit the merchants and the people in the area, would like to have, and have come to the CAB in one form or another, to require some service still to be performed at Midway Airport.

I had the good fortune, and the very valuable experience, in being executive director of a committee embracing every element of this industry, known as the National Air Transport Coordinating Committee.

I well remember the formation of this committee, because it occurred on February 10, 1952, following the closure of the Newark Airport.

If someone had told me on February 9 that public opinion could close a multi-million-dollar facility, built with public funds, serving a community's economic need, I would have said he was crazy.

The fact remains that at 3 o'clock in the morning on that day, with no leadership, the people in that area, were going to burn that airport down. They had mops, saturated with gasoline, obtained from breaking open gas stations. The airport was closed.

La Guardia and Idlewild were threatened with closure also.

It was the job of this particular committee to conduct a public education program that would tell the people in the area what these airports meant to them, to conduct a—and I use the term very advisedly—a public education program, to keep those two airports open, and to open up Newark.

I think I learned something in that. First of all, to respect thoroughly public opinion and the impact that it has. But I learned another thing. This goes to the matter of safety versus serenity. And that was that these people were scared. They had had this noise for a long time. These people were scared because their homes were being threatened. And I submit today that a major part of your problem, the problem of noise, is a divided one, and the majority of it, however, is in the area of safety, and a concern about safety.

I think that there is also, for whatever reason people have, an understandable annoyance. But I think that the record will show, too, once we have available the full studies on this, that once people have a place that they can go to, once they have a way to convey their concern, and once the industry has a means of indicating a concern with their concern, that many of these problems, many of these calls much of this concern dissipates.

Now, the point I am leading to, is this.

I am satisfied, being in the industry, that we are earnest, from our end of it, and doing all that we can, so long as safety is not compromised.

But I think the public needs to be assured of this. I think that the public needs to be exposed more, perhaps, to the type of answer that Captain Ruby gave here earlier today, as to why airplanes cannot come in over water, and then turn around and go back out over the water. And if we can, as an industry, and if we can through the other media that are available to us, get to these people who have these questions and indicate this concern, to give this kind of an answer, then those persons who are today lending themselves in support of a vociferous spokesman, will not tomorrow call, because he is going to know why this cannot be eliminated. And where we run into problems, I believe, in this industry and around these airports is where the public thinks no one gives a damn. This is why they come to you gentlemen and why these telephone reception centers, are awfully important.

I do not know exactly what form this public education program should take. But I do honestly believe that safety first of all is a basic concern of the people that are doing this. Annoyance, yes—and we know this, because in the summertime you get more calls than

you do in the wintertime. But as Mr. Halaby pointed out, on a cloudy day, people that look out and say, "Gee, airplanes should not be flying," and as they hear an airplane which they cannot see, there will be calls on that day, too. This goes to the question of concern over safety.

But it is absolutely true, as Captain Ruby has pointed out, that unless we analyze most carefully what we do, we can create more danger through the use of preferential runways, through increasing pressures, to follow certain aerodynamic patterns around an airport, to the point where we actually decrease safety and endanger the lives of our neighbors on the ground.

Now, I think that there are probably many forms this can take. The burden, I believe, is mostly on the Government agencies who are charged with responsibility for—the role of coordinating and the role of assisting on this. But it also is an industry problem.

I think it is our job to perhaps do a better job, too, of informing people in Congress, people in other areas, of what actually is being done, and perhaps to be somewhat more sensitive to the people on the ground who, through their spokesman, are registering a complaint.

I know also that a spokesman—and I have seen this repeated many times—who has been a vociferous leader of his people, who has been taken up to a control tower, who has maybe had an opportunity to ride in the front of an airplane and see what goes on, becomes just as strongly an advocate of the same procedure as the industry has adopted. This is a part of it.

Secondly, I think we ought to define a little better than we have as to just what are these really exposed areas. Any area, obviously, is exposed if an airplane flies over it. But perhaps better overruns, perhaps better zoning, which is largely a local prerogative, I agree—but zoning that classifies or permits only small industry around these bigger airport investments, because inevitably they will be there—but zoning which prevents the building of homes in these areas over which airplanes fly at a continuous repetitive rate. Annoyance comes from the repetition. This is the reason I think there is a difference between the smaller cities and the big cities, because in the small cities you do not have this kind of volume, you do not have these kinds of disturbances in some 400 airports in the United States; the airplane is still a curiosity there, is still a matter of interest, and people like to watch them fly over, because they are not doing it so often, but rather is what someone is going to watch, observe, and enjoy.

I think if we can do a better job locally in our communities of zoning the end of the runways—because I have yet to hear of a complaint from a manufacturer over which an airplane flies.

I would plead this, gentlemen—and my whole point is that we in our end of things are cooperating to the extent that it is feasible and proper to do so, through our pilots, through our own engineering department, through the industry associations, in alleviating this problem.

We do our own part, in our own communities, with regard to education where it is necessary to meet and talk with people, because this is a growing problem.

But I submit that there is little that can be done in a legislative sense without invading actually the community rights themselves,

and maybe the encouragement and education comes also into communities to do a better job of their planning around their airports, to avoid some of these problems.

I do not have the answer. I would not even try to venture an answer with regard to the longer range problems that have been discussed briefly here today on the sonic boom problem, the problem of aircraft some 4 or 5 miles from an airport, schedule after schedule after schedule, that goes over these homes, which is an annoyance—I do not know how to meet these, except give these people a chance, through their spokesman, to be exposed to the reasons why these things are necessary.

Public education, while a broad subject, is one that can have perhaps an immediate growing benefit, and one which I think always can be improved upon, in terms of techniques used.

But short of shutting down the airports, short of imposing uneconomic and perhaps unsafe things, then I think we are looking at a situation that is an evolutionary one, and not one that lends itself to a quick, ready solution.

We have got a tough, heavy job ahead of us.

Thank you.

General Cook. Thank you, Mr. Barnes.

Does any member of the panel wish to add to or to comment on the remarks that Mr. Barnes has made?

Mr. Winant. Sir, I do not know whether I am listed next——

General Cook. You are listed next.

Mr. Winant. I would like to supplement some of these remarks.

General Cook. Do any of you disagree with Mr. Barnes?

Mr. Tipton. One part, Mr. Chairman, as to what Les has said. He has emphasized for the first time the possibility of zoning around airports that are relatively new. That is a very important element in this picture. I would hope that in the course of our discussion we will get into it, particularly from the standpoint of the airport operator.

General Cook. We will ask the airport operators to address themselves to that question.

Mr. Halaby. Since your carriers use more airports than almost any other segment of aviation—there are some 7,800 airports in the United States, some 564 of which are used by regularly scheduled air carriers—are you finding that the campaigns against airports on account of the noise nuisance are having an effect on expansion, on new airport sites, on providing you with facilities in the communities all over the United States—not just these metropolitan areas? In other words, is it going to be harder to hold and get airports as your air transportation systems expand or easier?

Mr. Barnes. I do not think it will be easier. The experience that we have in these intermediate size cities to which you refer is that in your Department of Airport Development these people are the aggressors, they are the ones who want the Federal airport funds allocated to supplement their funds to build an airport so they can get scheduled airline service. And I think that history is not so old but what no more than two decades ago, or certainly around that time, that without exception the airport was a source of public pride in both large and small cities. And I think that—this goes back to my

point of asking a question here a little bit of what has happened—why this change?

Well, obviously, the problem has grown. But it has grown more in bigger cities than in smaller cities.

I do not think at this point the problem is severe enough that it has inhibited in any way the desire of the community to have a good airport, good scheduled service, and a good administration building, a source of pride, in other words, to the community, and they look upon it as such.

General COOK. Does anyone else have a question or comment?

Mr. RUBY. I would like to state that the ALPA agrees wholeheartedly with Mr. Barnes' statement of required overrun areas, et cetera, and cleared zones. And I think, too, that there is possibly one thing that I could comment on—being a newcomer to Chicago, I have been in the Chicago area in years past, when Midway was the busiest airport, I presume, in the United States, and probably the world, and it was, I presume, suffering with a noise blight at the time. And as of this time, it is suffering with the worst economic blight in the area that I have ever seen in any place in my life, short of these ghost towns in the West.

So I think rationalization is a pretty important thing, and I think Mr. Barnes has hit the nail pretty much on the head.

Mr. BOYD. I would like to add something to that.

I agree with everything Les had to say. I think this matter of public education is of great importance.

I recall a former honored Member of the House of Representatives, Mark Wilcox, who subsequently became chairman of the Dade County Port Authority, and he had a speech which he used to make to the people who were unhappy about noise and which he was able to demonstrate quite conclusively that for each job at the airport there were three other jobs being supported in that area, which went to the supermarkets, filling stations, post offices, and throughout the community. And this tended to cause people to look at the discomfort of the airport in a somewhat different light than they did before they related it to their own personal livelihoods.

This Midway Airport thing, I think, is the greatest example of that.

I would take issue with Les on one point. If I understood him correctly, he said that he thought the Government agencies ought to take the lead in this. I do not think so. I think this is something that the industry should do, and by "industry" I would include the manufacturers as well as the operators.

I share a general feeling that the Government ought not to involve itself in matters which are primarily the business of business, and, as I see it, this is.

It strikes me that, speaking of Government on the Federal level, our first purpose is safety. Assuming we do our jobs properly at the FAA and CAB, the public can be confident that the way the aircraft are operated will be in conformance with reasonable safety requirements.

Now, the understanding of the costs and benefits of operation of aircraft I think is primarily the business of the industry, and that we should help the industry in such ways as we can, through furnishing statistics, data, and information which happens to rest in our files.

Mr. CRISP. General Cook, I had one comment, as far as the question of zoning is concerned. I could stand corrected, but I believe that in any case where Federal funds have been expended in the construction of an airport, it is a prerequisite that a zoning ordinance be made in that particular community and approved by the Federal Aviation Agency.

Is that correct, Mr. Halaby?

Mr. HALABY. No, that is not correct.

Mr. CRISP. It is not a prerequisite?

Mr. HALABY. No, sir. Our latest experience with that is rather near. We have implored the political authorities around the Dulles International Airport to zone industrial, particularly off the takeoff and landing ends of the runway. And only recently, after a great public hearing, and under great pressure, they have zoned residential in the very areas we implore them to zone industrial. And I am sure there are quite a few other men here who will speak on that point, particularly Mr. Brown and Mr. Wiley.

I think it would be most unusual to have as a prerequisite of a Federal grant the imposition of a political zoning enactment. It might be desirable. But we have not yet required as a prerequisite of a grant that there be zoning against noise or against the residential development.

Mr. CRISP. Upon reflection, this it true—it is urged upon the community.

Mr. HALABY. Yes, sir.

Mr. CRISP. In every case. And you have a model zoning ordinance.

Mr. HALABY. Yes. We have all kinds of models, and we have all kinds of exhortations to people. We go as far—and some cases maybe further, than a Federal official should go in urging action upon a local city, county, or State authority.

But I question whether we should go on to the extent of withholding Federal matching funds that are now primarily for safety of runways and taxiways and turnoffs and approaches, and refuse safety feature money unless they had taken local zoning action.

Now, if that is a legislative mandate, we will carry it out. But I and my colleagues have not read the legislative history in that manner.

The CHAIRMAN. Suppose we move into some of these operators. I would like to get to the point, General, within the next 30 minutes, to let the committee have some opportunities to develop some things they might have in their minds, before Mr. Halaby and Mr. Boyd have to leave.

General COOK. All right, sir, we will do that.

I am going to call upon Mr. Brown, Mr. Crisp, and Mr. Wiley now, as a sort of a group of operators to discuss the noise problem in and adjacent to the airport, their problem of zoning, and what they have done, can do, or plan to do in the way of noise absorbers, such as vegetation, airport design, and management for noise abatement, the ground controls they exercise—and also perhaps to answer some of the suggestions that have been made in the past, one of which is why don't you move the airport, why can't we operate smaller aircraft, why do we have to have such large aircraft, why can't we have an aircraft that can take off and land vertically, and so on.

Mr. Brown, would you mind leading off this discussion?

Mr. BROWN. Thank you, General.

Gentlemen, I do not know whether the seating of this panel was by design; however, the airport operators happen to be at the end of the table, and we also find ourselves at the end of the line in the problem of noise. We have had to deal with communities directly, and I might add a volatile part of the community, in relation to noise.

The airport operators' views on abatement have been touched upon by many of the previous speakers. Our principles provide for the encouragement of aircraft manufacturers to build engines and devices which will be more effective in suppressing or minimizing aircraft noise. This has been touched upon by Mr. Halaby. They are to provide for encouragement and requirement that aircraft operators use the most efficient devices available for the suppressing or minimizing of noise annoyance.

This has been touched upon both by Mr. Tipton and Mr. Barnes, and I would like to indicate at this point that I concur wholely that the industry has cooperated with each other in attempting to coordinate our efforts directly with the local communities. I believe that our efforts have been real and have been productive.

We believe that flight procedures of aircraft should be designed to cause the least possible noise annoyance, after safety, of course. I also find myself in complete accord with the remarks of Captain Ruby and with the very fine presentation he made at the beginning of this hearing.

There is a need, we believe, for the Federal Government to issue such rules and regulations and orders to assure that aircraft will be built and operated so as to cause the least possible annoyance.

I was most encouraged when the chairman, in his opening remarks, expressed that he does not hold with those people who appear to think that we operators, we in the industry, are using delaying tactics in meeting the noise issue.

Gentlemen, I can assure you that we at the grassroots level, those of us who for the past 4 or 5 years have been meeting with our individual communities, have been living with the noise problem daily. We are expending every effort that is known to us to bring the desired relief to our communities.

We cannot stand alone, however. It must be a cooperative effort—not only within the industry, but with the Government. I take issue with Mr. Boyd's position that the Government should simply look toward the safety aspects of aviation. I respectfully call attention to the fact that if the economic burden of noise correction is thrust upon the airports and the industry, how can it continue to operate as a private industry? How can we continue to operate in the face of pending suits and litigation?

Will tariffs be raised to pay for the economic losses which will be taken by local airports? Can the Federal Government expect a local community who has an airport in an adjacent county to ask its taxpayers, through ad valorem taxes, to pay subsidies to operate?

I believe that it all gets back basically to the fact that somebody is going to have to pay the bill. We feel very definitely, as operators, that we cannot be left out on the end of the limb and have the Government say to us, "We have done all that we can do; now the problem is yours."

Mr. Chairman, in order to avoid duplication of material which is to be presented, the graphic presentation and the remarks which Mr. Wiley has prepared, I believe, will reflect generally the operators' view. We will defer further remarks until Mr. Wiley has been heard in this regard, if it is your pleasure.

General COOK. Mr. Wiley, will you proceed, please?

Mr. WILEY. Mr. Chairman, General, perhaps it might be appropriate if I very briefly summed up the two broad approaches that I see to the problems involved in this grievous sociotechnical issue that faces our Nation today.

I believe that there are two broad approaches to this problem. One is the suppression of the noise at the source, and the other is the taking of noise away from people.

It might be said that there are five lines of attack on these two basic approaches. These lines of attack may be accomplished through facilities—by that I mean such things as runway orientation, lengthening of runways to get the takeoff thresholds farther away from communities, the provision of displaced thresholds on runways, to permit aircraft to approach over communities at higher altitudes, the designation of runup areas on the airport to take maximum effect of hangar shielding and so forth.

Obviously I am just quoting a few examples. I am not trying to cover the entire gamut of items that these various lines of attack embrace.

The second might be procedures, by which is meant, for example, the development of preferential runway systems, optimum climb procedures, and turn procedures where they can be safely accomplished to avoid communities.

The third I would describe as compliance, which means the operator, the control agencies, and the pilots, making best use of the facilities and procedures available to them consistent, of course, with safety.

Then I might mention the fourth item being technological development, which would include that which we have seen occur in the jet airplane, even in the relatively short space of time since it has been introduced; the progression of the state of the art—from the 21-tube noise suppressor designed to a DB concept, to the 9-tube concept, designed to a PNDB concept (which takes more recognition of how we react as human beings to noise) to the development of the turbofan, the hush kit, and hopefully in prospect the resonator, to help absorb some of the forward whine from the turbofan.

The fifth line of attack would be that of public information, which I will not dwell on, since both Mr. Boyd and Mr. Barnes have spoken at length on that.

Now, with that summation, I should go forward now and say that I believe that there are certain things that the airport operator has done, and there are certain other things that pose a problem in the attacks on these two basic approaches to noise reduction.

With your permission, sir, I would like to briefly outline what these things are that the airport operator has done, and what the problem areas are, in order to get as much information on the table for your committee as possible.

If I may, I would like to use our experience in New York as a guide.

Now, the reduction of takeoff noise is something that we, as airport operators, working with the airlines, the ALPA, and the FAA have achieved. Over the years, a marked reduction in takeoff noise in the communities has been attained. And the record shows it.

The port authority monitors, that is, we take noise readings on every takeoff that occurs at New York International and Newark, and these records show an overall conformance record of 95 to 97½ percent—the most recent reading was 97½ percent for a 4-week period.

Now, how is this done?

Well, it is done as a result of action that started back in 1951, before jets were ever thought about—or at least thought about in a commercial sense.

The organization to which I belong—because there was no other experience to go on—had to pioneer in this effort of developing means of making the airplane as tolerable as it could be to the communities which it served.

Our commissioners of the port authority recognized this problem early, back in 1951, and adopted a resolution which stated that no jet or turboprop aircraft could operate at a port authority facility without permission.

Later along, in 1952, as Mr. Barnes has mentioned, the interest of the port authority in this problem led to the formation of the first industry noise abatement committee, the NATCC—originally its first executive director was Mr. Barnes.

As Mr. Tipton mentioned earlier today, the noise question rapidly became a national rather than a local problem. In later years, in evidence of this fact, we saw the formation of the National Aircraft Noise Abatement Council that Mr. Tipton referred to.

During the midfifties, as jets began to be ordered and began to appear off the production lines, the port authority required that noise tests be conducted on these aircraft by the consultant firm of Bolt, Beranek & Newman, because there was no knowledge extant at that time as to what the noise effect of commercial jet aircraft might be on the neighbors of the airports.

As a result of that pioneering early work, we had to set standards to develop the PNDB concept.

The CHAIRMAN. What is the PNDB?

Mr. WILEY. PNDB, sir, is the perceived noise decibel. This is a conversion of the machine measured decibel, so that it takes account of the high frequency factors that affect us as human beings more than low frequency factors do. It is a weighted decibel, if I may say that. I think that the acoustics group tomorrow probably can do a better job of defining it.

In developing these standards, and establishing terms and conditions for the use of the airports under our jurisdiction, we, as landlords, could say that no takeoff would be permitted without permission and without conformance with those terms and conditions.

I may say that this stand on our part spurred the development and improvement of suppressors, which are now fitted to all jet aircraft in operation—or if they are not actually fitted in the form of suppressors, the principle is embodied in the new turbofan engines.

We monitored each takeoff, as I indicated before. We reported the facts of each takeoff to each airline. We held followup meetings

with the airlines to discuss improvements and procedures. We assisted in the development of preferential runway systems, which now are administered by the FAA in our area under special regulation 442.

In one case, where repeated violations of the takeoff procedures occurred, we had to go to litigation or threaten litigation to secure conformance. That was a a rare situation.

As the landlord, we provided facilities on the airport design to reduce noise. For example, the extension of runways to remove the start of the takeoff roll further away from the community. Runway 13 right, 31 left, the so-called bay runway at New York International Airport, was progressively extended as technology disclosed the amount of sound suppression that could be achieved by this method from 9,600 feet, to 11,248 feet, and now to 14,600 feet. We did not need that amount of runway. The airlines did not need that amount of runway for operational considerations. It was purely in the interest of noise abatement. And it was done at great cost.

The second provision of facilities on the airport was an extension of runways to provide greater overwater takeoff use. The extension of runway 7–25 to 10,000 feet was completed in 1958—just as the jets were coming into service. The extension that I have already mentioned before of runway 31 left to 14,600 feet permitted driftoff turns over the water to make it, in effect, an overwater runway.

Presently going forward at New York International is the extension of runway 4 left, 22 right to 11,4000 feet, an extension of 3,500 feet, into the waters of Jamaica Bay, at a cost of some $8 million.

In addition to that, in 1959 we opened an additional overwater runway for landing use at the airport.

Now, these new facilities also permitted—and I am happy to say with the cooperation of the FAA—two of our airports, New York International and Newark, to be the first to have bidirectional approaches. This means the installation of instrument landing systems and approach lights at both ends of the instrument runways to minimize circling over the communities, which causes great noise generation. Thus direct approaches can be made to either end of the runways with consequent saving of circling and noise creation.

I have mentioned before the displacement of thresholds to minimize landing noise.

Now, this is the first time really that I have touched on landing noise. And landing noise is a very difficult problem, because the displacement of thresholds is about the only thing that the airport operator can do to minimize landing noise. He does not have control of the movement of the aircraft in the air—he should not have it. And there is very little more that the airport operator can do to effectively minimize the landing noise.

Mr. WILLIAMS. What are you referring to as thresholds?

Mr. WILEY. Sir, if you take the runway that perhaps will extend from here to here (indicating a border on the table), and if this (the end of the table) is the normal end of the concrete, you call it the threshold of the runway. If you are landing in this direction (from my right to my left), obviously you would come in over a community at a certain angle. Let us say Mr. Tipton's knee here is the community. Now, if you move that threshold down the runway further to my left, and put in threshold lights at that point, and say that no

landing shall be made in this area of the runway (between the new threshold and the end of the table), quite obviously you raise the altitude of the aircraft over this community substantially.

Three of our runways at New York International have such displaced thresholds—runway 25, a displacement of 1,800 feet, runway 31 left, a displacement of 3,324 feet, and runway 13 right, a displacement of 2,600 feet.

Another facility that we can provide and have provided on the airport are ground runup areas and procedures. We have accomplished this through again retaining Bolt, Beranek & Newman, to conduct noise tests, and to define areas on the airport where ground maintenance ground runups could be conducted, without annoyance to airport neighbors by taking maximum shielding advantage of hangar buildings. Where those hangar shielding areas were not available, we require the use of portable ground suppressors to muffle the noise of runups occurring beside or outside of the shadow of those hangar shielded areas.

Now, all of the above, we, as airport operators, have done.

We are not alone in this in New York. This has been done in many of the other airports throughout the country, and throughout the world.

But what are the problem areas that are before us?

First, I mentioned before the control of landing noise. It is most serious. Our experience has been that it is at the root of most of the litigation that is now before us. It is the source of most of the complaints—this we know.

But as I have indicated before, the landing noise problem, except for whatever we can do in providing displaced thresholds, is under the control of the FAA and the carriers, and there is little that the airport operator can do about it.

Another problem is the control of land use under the approaches.

Now, zoning has been mentioned. Zoning may be entirely practical at a new airport—in spite of the difficulty experienced at Dulles, Mr. Chairman, as I read from your remarks on the floor of the Congress 2 days before the zoning variances were granted out in, I believe, Fairfax and Loudon Counties.

But in any case, zoning will not help in an area that is as built up as the areas around LaGuardia and Idlewild Airports. They are completely built up already. Maybe zoning should have been done years and years ago, before that buildup occurred. But the fact is that now zoning cannot be effective in these particular large metropolitan airports.

Another problem area is the frequently received suggestion that the hours of aircraft operation be restricted to daytime. We do, in fact, at the present time have partial time restrictions in the terms and conditions under which our runways may be used. But the suggestion has very frequently been made that runways should be restricted for all of the sleeping hours—let's say between 10 p.m. and 7 a.m.

Now, with your permission, and very briefly, I would like to highlight the effect of a total nighttime restriction through the use of these charts.

Incidentally, sir, I apologize that the charts are up there and some of you gentlemen have to turn around, but it was the best place I could find to get maximum visibility.

We have all heard much about the possibility of restrictions on night flight operations, and we have often discussed this possibility. It is a solution that holds great attractiveness for airport neighbors, and is sometimes hard to refute.

For a moment let us look at the possible implications of such a drastic action on the Nation's air commerce, and in fact on worldwide air commerce.

Figure 23 shows a 24-hour timeclock for New York on the left ing to use figures, as I describe them, so they will be properly reflected in the record—figures 23 through 29 depict the progressive strangulation of air commerce between just one pair of cities, New York and London, if each were to impose a 10-p.m. to 7-a.m. curfew on jet landings and takeoffs during those hours.

This example is developed in this way.

Figure 23 shows a 24-hour timeclock for New York on the left and London on the right—midnight is at the top, noon at the bottom, and so on.

This chart also develops what I will call the apparent time, which simply means the difference between local time at New York and local time at London. It is important that this definition be made to understand what we will be saying in the next few minutes.

For example, an eastbound flight from New York to London requires—and I have rounded these numbers out to make the arithmetic easy—7 hours flying time. But you cross five time zones against the sun, so that the apparent time is 12 hours between local time at New York and local time at London for a flight from New York to London.

If an aircraft takes off at 10 p.m. from New York, it will arrive in London approximately 10 a.m. local time in London. Conversely, coming the other way, as shown by the bottom arrow, because of the prevailing westerly winds, the flying time is about 8 hours from London to New York, but you are going with the sun this time, across five time zones, so you subtract 5 hours and the apparent time is 3 hours. That means that if an airplane were to take off at 7 a.m., local time, from London, it will arrive in New York about 10 a.m. local time.

Now, let us suppose that New York puts in a restriction between 10 p.m. and 7 a.m. on all takeoffs and landings.

Figure 24 shows this in yellow, as a restricted time between 10 p.m. and 7 a.m.

Now, figure 25 shows in yellow hatching the effect of the New York curfew on London's ability to receive jets from New York—since New York cannot dispatch between 10 p.m. and 7 a.m., as shown on the left-hand diagram, London, 12 hours later in apparent time, cannot receive jets between 10 a.m. and 7 p.m.

Figure 26 shows in yellow the effect of the New York curfew on London's ability to dispatch jets to New York.

Since New York cannot receive between 10 p.m. and 7 a.m., London, 3 apparent hours earlier, cannot dispatch between 7 p.m. and 4 a.m.

Now, figure 27 shows in blue the added restriction imposed on London of a 10 p.m. to 7 a.m. curfew at that city, if London were to adopt it.

Now, going over to the other side, figure 28 shows in blue hatching the effect of the London curfew on New York's ability to receive jets from London. Since London cannot dispatch between 10 p.m. and 7 a.m., by their own curfew, New York, 3 hours later, cannot receive between 1 and 10 a.m.

Finally, figure 29 shows in blue the effect of the London curfew on New York's ability to dispatch jets to London. Since London cannot receive between 10 p.m. and 7 a.m., New York, 12 hours earlier, cannot dispatch betweeen 10 a.m. and 7 p.m.

This figure also shows that both New York and London would be totally restricted for 9 hours daily, between 10 p.m. and 7 a.m., partially restricted against either landings from or takeoffs to the other city for 12 hours daily, and unrestricted only 3 hours daily, from 7 to 10 a.m. at London, and from 7 to 10 p.m. at New York.

Now, naturally this is based on the assumption that just two airports might institute such procedures. But if it is extended, if this practice should be extended to other airports throughout the world, east and west of New York and London, and in different time zones, I believe we can readily see that we would have a situation so chaotic as to make the airplane worthless as an instrument of world communication.

With your permission, sirs, I would like to touch for a moment on the economic impact of air transportation in a region such as ours.

It has been mentioned before in terms of broad national figures. I would like to discuss for a moment the impact in our area.

In the New York metropolitan region, at our three airports, we are presently handling something in the order of 17 million passengers a year in and out. We expect that figure in the next few years to rise to 22 million to 25 million passengers a year, and to something approaching 45 million passengers a year by 1975.

Presently just at the airports there are employed some 42,000 people with an annual payroll of $303 million a year.

Now, that is those just employed at the four airports, including Teterboro.

If we add into that the related employment, and the related payments for services rendered to the airport—the butcher, the baker, the candlestick maker—that supply linen, food, the various items that go to an airport, and the drivers that bring them there, the taxicab operators and so forth, we find that there is a total employment attributable to air transportation in the New York metropolitan area of some 147,000 employees, with an annual payroll and payment for services of something in excess of $913 million a year, or just in payrolls, $18 million per week.

Thank you very much.

General Cook. Mr. Halaby, do you have any comments to make on Mr. Wiley's presentation, or any questions?

Mr. Halaby. Well, I think he has brought out pretty clearly that the airport generates noise, but it also generates jobs and payrolls, dividends and mobility, convenience, communications between countries.

Actually, it is kind of ironic, but there is also a national defense angle to this, in that many of these airports around the country are recovery bases for military aircraft, and some of them are joint use with military and civilian aircraft both using them.

So that I guess it is my feeling that people tend to take the airport for granted now, and that there is therefore a responsibility on us in Government, at the Federal level, in the executive branch and at the national level and the Congress to educate the public rather than just reflect their emotional reactions to the whole picture.

It is not just these jobs and these payrolls. There are some, probably 20 million to 30 million people moving through the New York metropolitan area each year that many—a very high proportion of whom would not come to that area if there were no airplane. And those people come with money and orders and very important missions.

The reason they come is because they can get there and get out fast. Others, because they can get there and stay.

But I think we have a major problem with this child, aviation, of making it the respectable, important part of the community that it really is.

I think it is important to query why do we pick out the airplane as the one transportation vehicle on which to concentrate our attention. This is an odd thing about our society right now.

The total intercity travel in the United States is about one-third by air. And yet the bus, the train, the automobile, and taxi carry daily billions, probably, of passenger-miles. They also—but, for example, the bus, injures—in fact it kills 140 times as many innocent bystanders as the airplane, the railroad, 330 times; the automobiles and taxis, 3,000 times—each time an airplane kills 1 person, the bus, the automobile and taxi kill 3,000.

They make much nearer noise, so that that noise carries with it a danger. And yet we have adjusted to this, and we are not even doing much research on it. There is not a great deal of State or local or Federal research on reducing the exhaust noise of the bus, or the railroad train, or the automobile.

Now, I just wish that we could bring other forms of transportation to the level of safety and nuisance as the airplane. And I wonder why—and I guess the answer is—going back to something Mr. Boyd said—is a psychological thing here that it is hard to understand, how to latch on it.

For example, we are spending $450 million a year in the FAA on the air traffic control system. Now, that is primarily for safety, to prevent collision and accidents. But a very important part of that system sees to it that aircraft are high and the noise is far away from the public beneath.

Captain Ruby noted to some extent the navigation comes down an FAA facility, the distance measuring transmitter is there to tell them how far away from the airport they are, whether they are over the water, over country, over a city.

We have radar vectors that now vector aircraft not only for safety in collision avoidance, but away from the most populated areas.

We then have this instrument landing system he told you about. That is designed to keep the airplane up for safety and efficiency as well as providing getting it away from the public underneath.

We have a precision approach radar at these major metropolitan airfields. And there is a standby machine that is not used by all the pilots, but it is there as a standby sentinel, and if pilots are dragging in, for

some reason or another, and they speak up, we have the tower, and his purpose is to tell the aircraft when they are getting low or out over an area.

We have lights, so that the pilot can land and does not have to go around. We have high speed turnoffs.

We are doing an enormous amount of work directly on safety that indirectly protects the public from the nuisance of noise.

One final point, Mr. Chairman. When I asked Mr. Crisp's question about the fact that we do not now require zoning as a prerequisite to a Federal airport aid grant because we don't believe we have either the legislative history or authority, I did not intend to preclude that as a good thing to do. In fact, we are considering within the FAA whether or not this should be something recommended to the President for his legislative program. But obviously, that will not solve the problem, because let us just take a couple of airports. The authority that zones us may not be the authority over the airport. For example, in Cincinnati the principal airport is in another State, not even the same city or county. That is true in Friendship. It is outside the city of Baltimore. The San Francisco Airport is not in the County of San Francisco. So even though the President recommended on our advice, even though you gave us the legislative history and authority, even though we were told to require zoning as a prerequisite, we would have quite a bit of difficulty in several political jurisdictions.

The CHAIRMAN. Mr. Halaby, I further realize, as does everybody on the committee and everyone here, that there are questions raised as to why the problem with reference to airplane noise is emphasized so much more than other types of noises. I guess we could raise some question about all this noise going outside our window, if we wanted to get down to all that. But we have this one problem that the Congress has directed us to study and investigate. We are trying to carry out that directive.

My attention is called to a statement that was made about the noise at ancient Rome, so this is not a problem that has just developed recently. It seems to be of record, as a matter of history, that as soon as the increased population created a demand for wheeled traffic in Rome, the congestion became intolerable. Julius Caesar's first act when he came to power was to ban wheeled traffic from Rome during the day. This created such a noise at night, with wooden and iron wheels rattling over the pavement blocks, that the racket tormented sleep. In another day it drove the poet, Juvenal, to insomnia. I wonder what would happen to him today.

You can see that the problem of noise did not start in our generation.

I am going to ask, General Cook, that we permit questions from members of the committee at this time, if it would be agreeable with you, because the time is slipping by and Mr. Halaby and Mr. Boyd must go at 4 o'clock, as I understand, or a few minutes before. I am sure there are some questions that some of the members of the committee would like to ask.

General COOK. Mr. Chairman, we have not heard from one very important member of our panel as yet. We have talked about the larger aircraft carriers, but there is a segment of aviation, general aviation, the business aircraft, that operates large aircraft and smaller

aircraft. Mr. Winant would like to say a few words on that, if you would like to have him do that.

The CHAIRMAN. All right.

Mr. WINANT. I shall certainly restrict these remarks and keep them less in volume than I would otherwise, if you would permit me a minute or two.

I would like to turn the committee's attention, if I might, to the smaller airports. Much, if not most, of the discussion today has revolved around large air carrier airports which handle large jet airliner operations. Mr. Halaby cited the figures earlier. There are some 600 airports in the Nation served by commercial carriers, out of a total of 6,000 airports. This leaves 5,400 smaller airports serving communities of varying sizes from small hamlets to medium-sized cities which have their own local, municipal, county or State airports, served only by the general aviation fleet. This fleet comprises some 80,000 units, of which some 28,000 are aircraft operated in the furtherance of the individual business and industrial efforts. These 28,000 aircraft comprise a grouping quite similar to that which is represented here today by Mr. Barnes.

Most commercial executive fleets are operated for the purpose of providing feeder airlines, which are of importance not only to the companies which operate them but to the communities out of which they are operated. At the present time, we are fortunately not under the hammer to the degree that the air carriers are in that these 28,000 units, by and large, generate a rather modest amount of noise. But they all do have powerplants, powerplants equal noise, noise equals distraction, on up the scale to annoyance and perhaps intolerability.

I would like to look forward a little bit into the realm of the period 1964 and on. We, in the business aircraft fleet, will have in those days, beginning in 1964, available to us at least one and possibly more small twin-engined pure jet transports, which would carry in the neighborhood of 6 to 10 people. These units will certainly have more power, more thrust than the piston engines which are used today. It could be that the fact that small jets will operate out of small airports will engender the kind of problem which is now experienced at Idlewild and Dulles and O'Hare, et cetera, and will place them on the local community level. I, therefore, would like to state, sir, that we in the aircraft business, in the general aircraft community, would feel that any broad and strict, any tight legislative restriction which would be imposed on aviation as a whole could do a good deal toward undoing the many benefits which are enjoyed by literally thousands of small communities in having available their own local airport, which is served by the business and general aviation fleet. I, therefore, solemnly and roundly recommend the approach which seems to have evolved from the panel today, that the effort should be toward broad education rather than tight legislation.

With that, I finish, sir. Thank you.

The CHAIRMAN. I thank you very much.

Mr. Williams?

Mr. WILLIAMS. Mr. Chairman, I have but one or two questions. I recall that Mr. Ruby suggested that the FAA should standardize certain procedures.

You used the example of getting into an automobile and going from State to State and running into different regulations in each State. You said that that didn't create too much of a problem, but that in the air, obviously, it would create a problem in a plane that could go over different geographical areas and change the procedures in each case. Just what did you have reference to?

Mr. RUBY. What I had reference to——

Mr. WILLIAMS. And does that relate necessarily to noise abatement?

Mr. RUBY. In a general way, yes. The reference I had was possibly permissive legislation in a manner that would make the FAA the responsible agency for establishing the so-called rules of the air, which, as it now stands, encompass at least a portion of the noise-abatement programs that exist throughout the country and the need for standardization is encumbent upon the pilot to try to comply within the best of his ability and the performance of the airplanes. This, in my opinion, degenerates to each community establishing its own set of rules and peculiar operating conditions. The ability to comply would almost be impossible, because you would need to catalog these requirements for each and every airport in which such a requirement existed.

Mr. WILLIAMS. You are talking about a situation such as existed at Idlewild, I believe, on runway 31. It is the one where you make a shallow left turn over the bay. Is that 31 or 40?

Mr. RUBY. It is 31 left.

Mr. WILLIAMS. Now, is that procedure established by the FAA, or is that something that is set up by the local authority?

Mr. RUBY. Well, in these cases in the past, these procedures have been generally developed as a result of joint efforts. Conversely, there have been stirrings in other areas that were more or less engendered by the local populace and the attendant airport authority, and in some cases, they were far afield of what you are actually capable of doing.

Mr. WILLIAMS. Let us go back to this case at Idlewild. As I understand it, these planes are required to make a procedural turn to the left over Jamacia Bay, in order to stay away from populated areas. Who requires that? Is it the FAA or is it the local airport authority?

Mr. RUBY. As it stands today, it is under special civil air regulations.

Mr. WILLIAMS. Promulgated by the FAA?

Mr. RUBY. That is correct. What I am suggesting is that as these things develop throughout the United States, that they be under the direct jurisdiction of the Federal Aviation Agency so that we could standardize and correlate these things.

Mr. WILLIAMS. Is that not the way the situation is?

Mr. RUBY. To a degree, yes. And we are desirous of preventing it from getting beyond these bounds.

Mr. WILLIAMS. Do you know of any cases where it has gotten beyond those bounds?

Mr. RUBY. Not as yet. However, as you are probably aware——

Mr. WILLIAMS. Your remarks to the effect that FAA should standardize procedures was anticipatory?

Mr. RUBY. Correct, and dealing with the foreseeable future so that we do not get into the same hodgepodge that we have with the rules of the road.

Mr. WILLIAMS. Do you know of any noise-abatement procedures promulgated by the FAA, using the one at Idlewild as an example, that effect a compromise with safety?

Mr. RUBY. I can state this, that the general concept of the noise-abatement procedure developed there was developed early in the operation of jet airplanes, and the tendency to develop an immediate left turn has subsequently been abandoned to the point that we can make the so-called left turn at an altitude which we show as 600 feet, which represents the circling minimums that are normally in existence at the airport in question. So this is a matter where we learn as we go, we make corrections to avoid unnecessary exposures, and up to this time, it has been by general agreement proposition, and everybody begins to understand the problem as they get better educated on the subject.

Mr. WILLIAMS. Then do I understand that at the present time, you do not know of any that could be said to be a compromise with safety?

Mr. RUBY. Not that I am aware of.

Mr. HALABY. Mr. Williams, could I come in there just one moment?

Mr. WILLIAMS. Yes.

Mr. HALABY. This, of course, refers back to one of the two fatal turbojet accidents of this past year, in January, on Jamaica Bay. The probable cause of that accident has not yet been determined. It has proven to be a very difficult one to determine by the Civil Aeronautics Board, I understand. I know we in the FAA have not, on our side, found the reasons and been able to take precise, sure corrective action. We reviewed very carefully by flying aircraft of our own and riding the aircraft of the airlines on that runway, in the thought that possibly an instruction that was being given to the aircraft as they prepared to take off, an instruction that Captain Ruby and I have both listened to as we prepared to advance the throttles down that runway. It went like this: "In the interest of noise abatement, do not delay turn." In the concern that a pilot, overzealous, anxious, should misinterpret that to mean that he was to compromise safety in order to avoid irritating those beneath the extension of runway 31, we changed that language to read:

> After takeoff, turn heading to 290° as soon as practicable after passing through 300 feet.

Now, some pilots were doing that anyway. Some carriers were using one flap setting, some another. But we have not determined that this noise abatement procedure contributed directly to that accident, nor has a finding of probable cause been determined. But we did make that variation in the tower's last instruction to the pilots on that runway before taking off.

We have in one of the exhibits I offered the committee this morning, two particular nationwide, standardized provisions, one regarding preferential runway system. In essence, it says that when the tower has determined, taking into account all factors—the wind down the airport, the weight, the weather conditions, the noise problems, that a preferential runway is to be used. The pilot who declines to use it must advise us of the reasons therefor.

Second, on final approach, the pilot must be at or above this safety slope, this stairway of safety down to the airport, and if it has not got

an ILS and has a visual glide slope, he must stay at or above that glide slope, and that has been designed and standardized so as to consider those underneath the airplane as well as those inside the airplane.

These other matters are not mandatory, they are planning, and they enable the air carrier, in preparing his operations manual, and I think it is very important to keep the relationship between the employer and the employee in private airline companies very clearly in mind and not have a Federal official coming in and putting his men on that throttle—in those manuals which we approve, there are other safeguards, not always successfully, to have them common throughout the country.

Mr. WILLIAMS. Is that in the form of a rule or regulation, these noise abatement procedures?

Mr. HALABY. It is in the form of an operating manual.

Mr. WILLIAMS. These noise-abatement procedures, the procedure I have mentioned which requires a turn, after passing a 300-foot mark, requires a turn to the left so as to stay away from a populated area, is that a civil air regulation of some type, is it a rule promulgated by the FAA, or just what authority does it have?

Mr. HALABY. It is not a civil air regulation.

Mr. WILLIAMS. Then you do not have any way to enforce that? In other words, if a pilot arbitrarily refused to follow that pattern and flew over a highly congested area and created quite a disturbance on the ground because of the noise of his aircraft, and he knew, or had reason to know, that he was creating a disturbance on the ground, does the FAA have any way that they can file a violation against him or take some kind of disciplinary action?

Mr. HALABY. Well, let me distinguish between two things, an air traffic rule which is the thing I just referred to, and the preferential runway at or above the glide slope. These are in the part 60 rules, and you will find when you have an opportunity that 60.18(3), Nos. 5 and 6, those are rules. Violations of those rules bring on the suspension or revocation of the certificate of the pilot or a civil penalty.

Now, with regard to those noise abatement procedures, I believe I am correct in saying that in no case have we made them subject to a rule. But there has been worked out on the spot by the airport owner-operator, the air carrier, the airline pilots, and, in some cases, other parties such as the State aeronautics director and the like. They have been tailored for the situation on 31 left or 24 right in Los Angeles. They have had all the power of logic and equity and consideration for the traveler and the public underneath. They have not satisfied everyone. Pilots are not subject to a penalty for violation unless at the same time there is a violation of one of the air traffic rules.

Mr. WILLIAMS. That is right. That brings me up to this: now, if I get a plane to buzz my hometown, for instance, at 250 feet above ground. I am subject to a fine.

Mr. HALABY. Yes, sir.

Mr. WILLIAMS. But if I happen to be an airline pilot taking off at Idlewild on runway 31, and I fly over this congested area and do not follow your procedural turn to the left, I am not subject to a fine—is that correct?

Mr. HALABY. Unless you are violating one of the air traffic rules at the same time.

Mr. WILLIAMS. I am taking off. I have not reached your minimum altitude. But I am not subject to a fine for that?

Mr. HALABY. Well, you are not subject at this time to a fine from the FAA. You do have to contend with two other people who are watching you. One is your boss in the airline, who has an operating procedural manual by which he has trained you and instructed you to fly by.

Second, you have the landlord of the airport. Now, what they do with respect to this is independent of what the FAA does.

Mr. WILLIAMS. I do not want to use up all the time here. But it has been suggested by Mr. Pucinski with respect to Chicago, for instance, that there are a lot of planes that do not follow these procedures. They come dragging in or they make a low-level takeoff, and it is virtually impossible to identify the particular aircraft which is doing that. He has suggested that the FAA give some thought to requiring that the airlines, because this appears to be an airline problem, could paint identification numbers on the bottoms of the wings. For instance, it would be AAL No. 2, or AA–2, or what have you, so that that particular aircraft would be identified and the complaint would be made to American Airlines with respect to flight No. 2.

Now, I know that that reached your office, because I believe Mr. Pucinski talked with you about it several times. Was consideration given to that?

Mr. HALABY. Yes, sir.

Mr. WILLIAMS. What action, if any, was taken or is contemplated to be taken with respect to something along those lines?

Mr. HALABY. The action taken has been for me to request the carriers for the larger aircraft, turbopowered, to resume underwing marking on a voluntary basis. This only a few months after the Government had determined, I think shortly before I came in, that it was no longer useful or beneficial to require the underwing marking, it was more important to require the side marking for identification and airport traffic control work. The response has been cooperative on the part of the carriers. They do put AAL, I believe, on the turboaircraft, or they are doing so on a voluntary basis.

They of course could never put AAL–2, because the same airline becomes AL–3 as soon as it turns around in Los Angeles, or AAL–504 as soon as——

Mr. WILLIAMS. Let me make it clear, I did not mean to accuse American Airlines of doing that.

Mr. HALABY. I understand. Mr. Pucinski has quite a few airlines who are fighting those people under the approach and takeoff area at O'Hare. I guess the people over at Midway wish they were irritating them now. But that is the status of it.

Now, we have the authority to require underwing identification. We doubt, and Mr. Pucinski and I have had several conversations on this, and he has great merit on his side of the discussion, but it is so hard to see and identify that number that goes by so fast, it can be easily misrecognized and we still think the best way to get in contact with the offender who goes below the ILS or the VASI is for the person, and as they do it, day in and day out, to call in and say such-and-such an airplane of such-and-such a shape and color and the number, if they can see it, passed over my house at such-and-such an hour.

Now, in many cities—New York, Los Angeles, and elsewhere—there is a sort of central point receiving those calls, and they try to identify the airplane. They contact the crew, then they contact the complainer and they try to match the two stories. I think it is fair to say that so far, the deterrent action has been the employer, his action with respect to the crew, the airport's pressure on the employer and the crew, rather than fines by the FAA.

Mr. WILLIAMS. Mr. Chairman, I am going to yield. I have used up too much time.

The CHAIRMAN. Mr. Younger?

Mr. YOUNGER. Thank you, Mr. Chairman.

I certainly agree with the general philosophy that has been expressed here that education has a great deal to do with eliminating the complaints. We have experienced that at the San Francisco International Airport, which is in my district. With the cooperation of Mr. Brown and the airlines, they set up a noise abatement committee representing the cities involved, the people and the airlines and the pilots and the airports, and an office to which to report the violations. From that time on, the complaints began to lessen.

We had an experience with zoning, wherein one of the areas which made the greatest complaint—I think there were about 70 or 80 small homes in a little area just across the highway from one of the takeoff runways—I think it is R21. Our committee went over there when we were out there, and inspected the homes. At that time, they were complaining about the cracks in the bricks and everything else, and that the houses were about to fall down and so forth.

Immediately after that, a developer started to build apartments right adjoining. Now they have completed 120 apartments. They are all occupied at good rentals and there are no complaints from them at all. The property was zoned for apartments before the advent of the jet. The city would not change and did not change the zoning.

I am particularly impressed with the testimony of Captain Ruby. In my opinion, if his testimony today was in a pamphlet which could be given to the people that complain about the airport noise, it would be the greatest deterrent that I know of. One of the greatest deterrents we had was when Oakland tried to take our airlines away from the San Francisco Airport and we simply told the people, "Now you have got a choice: Do you want the airlines here or do you want them over to Oakland?" They wanted them. I think there is no question about it.

I think your talk, Captain, if that were in a pamphlet which was available for distribution, as well as this hearing, I think it would be one of the greatest educational pieces that we could send out.

That is all I have to say.

Mr. ROGERS of Texas. Gentlemen, I suppose Mr. Halaby is the one to answer this question. How many airports are we dealing with in this problem right now?

General COOK. I shall have to refer to Mr. Halaby on that.

Mr. HALABY. There are 7,800 airports in the United States.

Mr. ROGERS of Texas. I know.

Mr. HALABY. I am coming down to it. Seven thousand and eight hundred altogether. Five hundred and sixty-four are used by air

carriers, and I think the total number where we have real, let us call it public interest and pressure, is probably in the order of 21. There are actually about three of them that are the utmost.

Mr. ROGERS of Texas. As I understand it——

Mr. HALABY. Or "utworst."

Mr. ROGERS of Texas. As I understand it, the situation has developed presently to where, on those 21, let us say, the people are either going to have to listen to the noise or the airplanes are going to have to be taken off. As I understand Captain Ruby, the noise abatement procedure has just about reached the end of the line and there is nothing else that can be done.

Now, what is being done, Mr. Halaby, with relation to this possible problem in the future? Let us take, for instance, Dulles Airport. Was one of the reasons for locating it at a distance, prompted by the desire to get away from this noise complaint?

Mr. HALABY. That is my understanding, Mr. Rogers. They selected the site on that as well as on air traffic control and cost of land considerations. They also bought some 10,000 acres. They made long runways, 11,500 feet, for example. Then they bought land at either end. Then we have planted trees, a green belt, all around it. We then implored the counties to zone against residential intensive development. They refused. We have traffic control and other procedures there.

Mr. ROGERS of Texas. You say they refused to zone?

Mr. HALABY. Yes, sir.

Mr. ROGERS of Texas. So that becomes a local problem over which you have no control.

Mr. HALABY. Yes, sir.

Mr. ROGERS of Texas. Now, Mr. Halaby, in dealing with this problem in the future, would it be your feeling or your suggestion that some restraint might be put on the use of Federal funds unless proper zoning were developed in the localities that want development of an airport?

Mr. HALABY. That is one possibility, Mr. Rogers. It would work, I believe, in those areas, where they wanted Federal grant money and needed it, and second, where the sponsor of the airport was also the zoning authority. It would not work where the airport did not need or want Federal aid. It would not work where the sponsor seeking the grant had no zoning or no control over the zoning.

Mr. ROGERS of Texas. Now, of course, as the matter stands with regard to the 21, there is nothing further, as I understand it, that can be done unless you move the airport to another place or move the landing place of the big commercial aircraft to another place. Now, as to the smaller business aircraft, is the complaint in those areas directed against those aircraft also?

Mr. HALABY. Mr. Rogers, it is a very small fraction of the complaints against the large piston- and turbine-powered aircraft. There are one or two of the business aircraft that are fairly noisy, and in some of these 21 airports, you do get complaints about them. But I believe Mr. Brown, Mr. Crisp, and all of these gentlemen have agreed it is a very, very small fraction.

Mr. ROGERS of Texas. How far in the distance do you have to be from these larger aircraft in order to get away from the noise factors?

Mr. HALABY. Well, one on the services that the Federal Aviation Agency, with the help of some of these men here and other studies, provides is what is called sound pressure level contours. It takes an airplane like the Boeing 707, at a weight of perhaps 250,000 pounds, and assumes a takeoff, and it shows the noise levels at the various distances out. This is provided the local airport owner and operator and the community around them so that they can estimate how much land to buy when they are building, as, for example, in Houston, a brandnew airport. Unfortunately, that costs a great deal of money.

We have a problem right now in relation to your previous question. A certain county has about $6 million worth of Federal aid and about $6 million worth of local money in a new runway that is just being completed. It is ready to use. It is there, and the only thing missing is the instrument landing system and some new end runway lights, new runway lights that we have in mind. They have written me and they have said, in effect, until you promise to pay half of the damages collected by suits from the neighbors of this airport, we consider this under the *Griggs* decision an airport that is not operable.

Now, if they were followed by others, then the local authorities would demand an indemnification bond, in a sense, from the Congress of the United States. So that not only do we pay for half of the runway and all of the lights and all of the instrument landing system with national taxpayers' money, but we also idemnify the local airport owner for half of the cost of the suits.

Now, of course, in your wisdom, you could provide for that in the Federal Airport Act, just as you could provide that zoning was a condition to a grant. But that gets to be pretty steep.

Mr. ROGERS of Texas. I am afraid if my wisdom prompted me to do that, the people at home would stop using my wisdom.

Mr. Ruby, there is one question on the noise situation in the time and manner and operation of the aircraft. What purpose would be served by the pilot simply raising them over into almost full throttle in preparing to go out to the runway for the takeoff? That is, while he is there right at the airport terminal, right at the terminal? Does he need to do that?

Mr. RUBY. If this is an attempt to leave the gate, frequently you will have to speed at least one engine up to start the turn. There are other conditions. For example, in the summertime, when the ramp happens to be made of something other than concrete and it gets soft, the weight of this airplane while it is parked there will produce a small indentation on this semiplastic surface and it acts as a bit of a chock, and you can't get the airplane to roll out of this slight depression that all the tires are setting in until you apply enough power to get it to move. Then you can reduce the power and it will roll fairly easily.

Mr. ROGERS of Texas. Well, on a concrete runway in the fall, how long would you have to speed the motor of a Viscount in order to start it moving?

Mr. RUBY. Well, I could not say definitely how long, but this is a function of how heavy the airplane is on the one hand, whether you have got ice spots on the pavement on the other, and how sharp you have to turn to, say, miss an adjacent airplane or——

Mr. ROGERS of Texas. I mean it would not take a matter of 10 minutes, would it?

Mr. RUBY. No.

Mr. ROGERS of Texas. A minute would probably be long enough?

Mr. RUBY. In many cases, you can do it in a minute or less. This is a situation that in many cases will not prevail at all. In others, you have to apply a certain amount of power to get it to move.

To give you a case in point, the Electra has what is known as a low-ground idle, and it is far less noisy than the normal turbine speed, which is 13,820 revolutions per minute. But strangely enough, it does not produce enough power to move the airplane until you get at least one engine in high-ground idle. Once you get it rolling, then you can return to low-ground idle.

There is one other point I think would be appropriate to clear up. I think Mr. Williams a while ago made a query about not always does the aircraft follow the same outbound pattern. Well, this is true, and the major reason for this consideration is the fact that if airplanes are taking off in rather rapid sequence, the pilot of the following airplanes will try to stay out of the wash of the preceding airplane, because two things occur: one, under certain conditions, an airplane that enters the wash of another can almost get out of control; secondly, even if the pilot is successful in control, it produces an awfully rough ride for the period of time it is exposed to the wash. Light aircraft can go completely out of control when entering the wash of an extremely heavy airplane and one with a lot of power.

So generally, the pilots try to run their broadening circle to stay out of the wash of the preceding airplane until enough time has passed for the wash to have dissipated, and then they will tighten the circle up again.

Mr. ROGERS of Texas. Thank you, Mr. Ruby, and thank you, Mr. Halaby.

The CHAIRMAN. Mr. Thomson?

Mr. THOMSON. I have no questions.

The CHAIRMAN. Mr. Friedel?

Mr. FRIEDEL. Mr. Chairman, I shall be very brief.

I shall make my remarks to Mr. Halaby. Congressman Walter Rogers asked you why they built Dulles. You said you didn't know. I thought it was a very, very good answer. When you started to explain it, then I did not agree with you.

Secondly, under the law, do you not have the right to withhold funds of the Federal Airport Act when they refuse to abide by the zoning laws? Do not you have the power today?

Mr. HALABY. We do not think we do, Mr. Friedel.

Mr. FRIEDEL. Well, here is a great example: a new airport, one of the showplaces of the world, hundreds of millions were spent—and here they are going to build housing, residential homes, right near the airport—and we repeat this trouble again. There is something wrong with the Federal Airport Act if that is the case. I always thought you did have the right.

I want to make this one statement. Friendship Airport does have proper zoning as far as height and residential. Although the airport is not in Baltimore City, Baltimore City owns it. I remember in Anne Arundel County, where they wanted to build some houses way

away from Friendship Airport, the FHA refused to grant loans, feeling that because of the noise, people might refuse to buy these homes. That is an example of one agency cooperating with another. But I thought surely you had the right under the Airport Act to withhold funds.

Mr. HALABY. We do not believe we have, Mr. Friedel. Also, Dulles International Airport was built under a special act of Congress, passed many years ago, and is separate from the Federal Airport Act.

Mr. FRIEDEL. Do they not receive funds from the Federal Airport Act besides?

Mr. HALABY. No, sir.

Mr. FRIEDEL. They do not?

Mr. HALABY. No, sir. That money is appropriated each year under the authority of the "Additional Airport at Chantilly, Va.," I think is the heading.

Mr. FRIEDEL. That is all, Mr. Chairman.

The CHAIRMAN. Mr. Hemphill?

Mr. HEMPHILL. Thank you, Mr. Chairman.

General Cook, I would like to direct my question to Mr. Halaby. I would like to sort of sum up what was said here today to see if I am correct. What I have heard here today is that the Congress cannot legislate in this particular field and preserve the very four essential things that we want from air traffic: first we want safety, next we want service, next we want convenience; and in order to keep it as private enterprise for profit, we must have economy.

Now, it seems to me that what has been said here today is that the Congress cannot legislate and still preserve those features. Do you share that opinion?

Mr. HALABY. Well, sir, I think it would depend on how you legislate. For example, I said we were giving consideration to proposing to the President, and he in turn to you, for authority to require adequate zoning before further Federal aid was provided. But that might be just the thing that deterred the community from going ahead with a new airport or the expansion of its old airport. So the very thing that seemed wise could deter the voters, who undoubtedly would have to vote a bond issue in a case for a new airport, and either for major expansion of an old airport, who would say, well, if we are going to zone all of that area industrial, we shall vote against it. So even that tends to deter, tends to hamper the advance of aviation.

Mr. HEMPHILL. Yes; even that would not be any sort of panacea for the problems you already have?

Mr. HALABY. That is right.

Mr. HEMPHILL. Another thing occurred to me. I sat in on hearings when the subcommittee, of which I am not a member but in which I am interested, had hearings on O'Hare. I gained the impression, and perhaps I am wrong, that the local community says, we want an airport and we want the Federal Government to put the money in it, we want the Federal Government to make sure we get the service, we want the Federal Government to make sure we have the safety, we want the Federal Government to monitor the airways. We want to control it, we want to be the landlord, we want to determine the local rules and regulations, and when we get into trouble, we want to go to the Congress and say, "It is all your fault."

That is what I think the situation is here, and it concerns me. I was struck by the semantics of your earlier remarks that the Congress is the "receptacle for blame," and I think it is in this field. It concerns me that they cry for the service, and all of us want the service, and they do not want the attendant difficulties which are inevitable, the air traffic. In my own judgment, if you have an airplane coming in, it is going to make noise, and coming in for a landing or taking off, they have to have a certain amount of noise.

I would like to see us pitch it back to the local authorities and say, if you are the landlord—I do not want to violate the very good suggestions of the captain, there, but certainly they ask for the noise when they ask for everything else that Congress gave them, it appears to me.

I want to thank you personally for your remarks. I am in absolute sympathy with your position.

Thank you, Mr. Chairman.

The CHAIRMAN. I think Mr. Halaby has got to go, too. Mr. Boyd, I think, has left.

But I would like to make this brief comment before you leave, Mr. Halaby. In the first place, I do not share the view expressed by Mr. Ruby and others here that we have got to accept the principle that everything has been done that can be expected in this field.

Mr. WILLIAMS. Mr. Chairman, I do not think he said that exactly. I think he said that everything that could be done in the promulgation of regulations and traffic rules had been done.

Is that not true?

The CHAIRMAN. Of course, the record will show what Mr. Ruby has said, and that others have echoed the statement. I wrote that term down at the time.

It may be that we have run out of accomplishing anything of what we might know at this time. But I do not accept the implication that this is the end. I think he did modify his statement by saying—I am not talking about the individual pilots, I am talking about the entire problem. I think that by continued efforts, study, and research, new ideas are possible. I do not want this panel, that you speak for, being concerned with the operational end of this subject matter. I do not want this panel to end on a note that it is impossible to do something about this problem and we are going to quit. I am sure that that was not the intended implication.

I do think that if you keep in mind the safety angle which is paramount in our minds, the interest of human life, I have a feeling everyone will cooperate toward a determined objective to do something about it, and then something will be done.

Now, Mr. Halaby, I would also disagree with your position, as I understand your position, that the FAA does not have authority to deal with this subject.

Mr. HALABY. To do what, sir?

The CHAIRMAN. To deal with this subject, particularly with reference to zoning and location of airports and all the things that are necessary in its operation.

I can refer you to the committee report of the 86th Congress, filed October 15, 1959. That was shortly after the Congress approved the new Federal Aviation Agency, of course, some time before you arrived on the scene and accepted your tremendous responsibility.

We said in that report, and I am quoting page 7:

> For many years, the committee has been engaged in the study of aircraft noise problems which are considerable in the vicinity of some of the Nation's major airports. In writing the Federal Aviation Act of 1958, Congress expressly gave the new Federal Aviation Agency authority to make regulations "for the protection of persons and property on the ground," a broad extension of the rulemaking authority which had been granted to the Civil Aeronautics Board by the Civil Aeronautics Act of 1938.

Now, if I recall, during the course of that legislation, we had a colleague from Georgia, Mr. Prince Preston, who brought to the attention of this committee a problem with reference to the dusting of cotton.

The committee considered that problem, and if I recall correctly, we decided not to limit this authority to crop dusting, and we reminded the Congress in that report that we did extend the broad rulemaking authority.

Now, immediately following that, General Quesada was the first Administrator, as I recall, and I am making this statement for the record, Mr. Administrator, and for your agency.

We have had the question of jurisdiction up before and there will be some discussion on Thursday about it. But shortly after that, General Quesada, who headed the President's Study Group and had a great deal to do with the development of these amendments which became the FAA Act of 1958, took the place of his predecessor, General Curtis. General Quesada was very active during the course of the legislation and was one of the major witnesses.

After that experience behind him and as Administrator, here is what General Quesada said about this problem:

> Thus, while I feel I have the basic legal authority to issue air traffic control regulations to suppress jet aircraft noise for the protection of people and property on the ground, I am, of course, not in a sound position to issue any such regulation until appropriate technical and legal studies are concluded.

Now, I feel, Mr. Halaby, and you gentlemen of the airport operators' council, that the Congress did consider this matter and the authority when the FAA Act was passed in 1958, and I feel that there is legislative history that does give you the authority.

As Mr. Younger stated a moment ago, I would not be surprised if this is not a problem that will arise if and when the extension of the airport program is considered by the Congress.

I would suspect that at that time, it might be made so clear that there would not be any question as to what your authority would be in this field. I merely state, for the record, that maybe consideration should be given in future development of these airports, to you gentlemen on the local level, the airport level, and also to the airport authorities, to be called upon to give assurances to the Federal Government in the future.

In that way, we can certainly clarify the jurisdiction of this problem and not have it kicked about from one to the other. I personally feel there is responsibility at all levels, and certainly the level of Congress.

Having said that, Mr. Halaby, and having kept you here 15 minutes longer, you may be excused.

Mr. HALABY. Mr. Chairman, I probably ought to silently walk out, but, if you do not mind, I want to clarify two points.

In echoing Captain Ruby, I understood him to mean that we had gotten the last mile out of what the pilots could do in making their takeoffs and turns in order to reduce noise.

I do not believe, and I know I personally am not convinced, that we have done everything that we can do about reducing noise. But I do feel we have pressed the pilots. Of course, they were the easy ones to press. They were sitting there on the runway ready to take off. They could pull up and turn and that was easy.

But the hard part is the engine manufacturer, the designer, the community in its zoning, and so on.

I did not mean that we had no authority over this, Mr. Chairman. I know you know this act better than almost anyone, because you were a principal architect. I did mean that we do not believe we had authority over local zoning.

Now, if General Quesada meant that he had basic authority to suppress noise under the Federal Aviation Act, I doubt that he could have meant that he had basic authority to go into the community, the city, the county, and say, this is industrial, that is residential.

I hope I am never given that authority. But if you give it to me, I would try to carry it out.

The CHAIRMAN. I doubt if the Congress would give you that authority. But I think there is the probability, if there is any doubt about it, that the Congress would say before anything is undertaken, certain assurances will have to be given.

Mr. HALABY. We are carrying out the authority you did provide through these documents here, and then through a kind of mixture of local government, Federal Government, and private industry cooperation on the site of the problem.

Now, maybe that is not good enough. If you tell me it is not right, I shall do what you tell me.

Mr. WILLIAMS. May I interrupt for just one second?

The CHAIRMAN. Yes.

Mr. WILLIAMS. They must put in a plan on the airport, as I understand it. Could they not be required or asked to submit that as an element of that plan, that plan with respect to the noise problem?

Mr. HALABY. Yes, sir; and we urge them, we beg them, we press them to submit a zoning ordinance and master plan for the whole area. But I do not believe that we have the authority and the legislative history to require that when everything else is right that they have not passed the zoning ordinance, and are not enforcing it, that we will refuse them Federal aid to an airport which has everything else right.

Now, if we do have that authority, your legislative history here will educate and instruct us on it.

But even after it is established by law or interpretation that we have it, it only helps us a little bit. But that any little bit helps.

The CHAIRMAN. I doubt very seriously if a question of withholding funds on zoning can be even implied. There is no question about legislative history as to the protection of persons and property on the ground.

On the other hand, Mr. Brown, if a person moves in after the installation has been constructed, I do not see how the Federal Government could be in any way held responsible for it. I tried to caution

the people around Dulles International Airport, last summer, if you will recall. I got some wonderful rebuffs from the real estate people out there.

Mr. BROWN. Mr. Chairman, it seems to me that the conversation is developing around two particular points: One, what you can do or what would be done with the development of a new airport within a completely new community. This, I presume, over a period of time could be protected through zoning procedures for future developments.

But what is going to happen to the metropolitan areas, the larger airports, the 15 or 20 at the present time that have developed their airports?

The community has built around them. This has caused a situation which leaves no alternative but to try to get some land back. The only relief that I can see is to displace this airport completely and put it in another area that is now an agricultural area, one that has not any industrial or residential development.

I think, sir, you would find within a period of 10 years that there would be a completely new community built around that airport. The tremendous economic impact that it has would develop a completely new community. Is the community that has already developed and built its airport in a metropolitan area to be put in a position of not being able to do anything in connection with developing further that airport? Because the properties in some areas now are at such high values, to buy them back through an urban redevelopment program is economically impossible.

There are vacant areas adjacent to, for example, San Francisco International Airport, which is a comparatively small airport, in comparison with New York City's. We have some 6 million passengers. Tideland, 5 years ago, was bought through the city of San Francisco, for $300 per acre. The last 23 acres recently purchased to try to protect the clear zone, cost San Francisco $2,300 an acre. This for ground that is under the water.

The CHAIRMAN. Mr. Halaby and Mr. Boyd, thank you very much for your appearance here today. We do appreciate your joining in this distinguished group of people here on this terrific problem. I know you have been giving, in your urgency, a lot of time and effort and allocating a lot of money to it, and I think that the ground level ought to keep that in mind, too. Efforts are being made to do something about it. On behalf of the committee, I want to thank you.

Mr. HALABY. Thank you, sir.

Mr. BROWN. In conclusion, Mr. Chairman, I want simply to say that that land is now selling for $60,000 an acre. To have to buy this kind of acreage for clear zone poses difficult economic feasibility problems.

Mr. FRIEDEL. Mr. Chairman, I want to ask one question.

The CHAIRMAN. Mr. Friedel.

Mr. FRIEDEL. General, we were talking about noise. Was anything brought up about cracks in the walls or ceilings or things of that sort, and what is being done about the supersonic transports for the future?

General COOK. Mr. Friedel, tomorrow the technical panel will appear before this committee. That is one of the subjects they will be

prepared to discuss. Those of us here are not qualified as experts on that particular subject.

Mr. FRIEDEL. Have your complaints been just about noise or also about cracks in the walls?

General COOK. There have been complaints made, I know, to the military services and also to airport operators about cracks in the walls, falling plaster, dishes broken, practically anything you can imagine, as a result of noise. However, I believe you will get much more information on that subject out of the group that will appear here tomorrow.

Mr. FRIEDEL. Thank you.

The CHAIRMAN. General, I turn it back to you for the time being, so you may proceed.

Mr. TIPTON. General Cook and Mr. Chairman, just one short comment: I am very glad, Mr. Chairman, that you brought us up short on our comments with respect to what we could accomplish and what we could not accomplish, because I think all of us had been leaving a complete misapprehension as to what the future held. Our comments have been that in working out noise abatement procedures with our airplanes, making turns, using preferential runways, operating downwind sometimes, operating at crosswinds sometimes, we thought that in that area, we had just about exhausted ourselves. We could not change the operation of the airplane any more without sliding into a safety problem. But that is just one phase of a noise abatement activity that we have all been engaged in.

We all have to move forward on research, clearly, and improved powerplant development. I think the zoning and general land use issues about which we were talking are an important area in which we should work, and there are many others, as we gain experience with this, that we shall move into.

I think the essence of what we have all been saying around the table is that in working out noise abatement procedures, that reduces the noise very promptly. That we have just about run out of opportunities to do. As we make progress now, it is going to be slower and more painstaking and more difficult, which makes it even more important, I think all of us will agree, that we work hard on it, that we continue to concentrate on it and concentrate particularly in a cooperative way.

General COOK. Thank you.

Mr. Ruby, in order that the record can be clear as to what you said about wringing the last bit out of the pilot's operation of the aircraft, I believe it might be well for you to restate that so that we have a clear reference to it.

Mr. RUBY. Well, I think so, too, because I intended, if I did not say it, to the effect that we had about wrung out operationally all we were capable of doing within the physical limitations of the aircraft, et cetera. This is what I meant; whether I said this or not clearly to begin with, I do not know. But that is the intent of the original statement. I think if the record is reviewed, I also stated that I did not think we had great breakthroughs just around the corner, but it would take a lot of effort on anybody's part, with their shoulders to the wheel, to try to evolve methods and ways of doing things to minimize the noise situation.

I think this should clear up any misunderstanding on the original statements, if such existed.

The CHAIRMAN. Mr. Ruby, I remember several years ago, the military said they had run out in fact. When an incident occurred in California, where the plane fell into a schoolyard—I have forgotten how long ago that has been; some 4 years ago——

Mr. YOUNGER. Six or seven years.

The CHAIRMAN. Was it that long?

Their position was that they had just been wrung out, too. But a clamp down was made and then, for a few hours, they could not operate in that area, and if I recall correctly, it was quite a situation there for a little while. But they did come back, and even though they had said that they had wrung out and could not do anything about it, they did do somthing about it.

What I had in mind was that even though we may feel that we have reached the end from that standpoint, as you, I believe, so well said, or Mr. Tipton, you are benefiting from experience and from time to time something occurs that gives you ideas, and in that way you have benefited by it. I just have a feeling that these new ideas can very well happen in the future as well as they have in the past.

Mr. RUBY. Well, I agree with that. However, during the time airplanes are being certificated, usually, most of the operational procedures are developed by the pilots who are employed by the manufacturer. And in the course of time, in some instances, at least, we have found operational procedures that were more satisfactory in terms of preservation of the equipment, the engines, et cetera, and if I remember right, the incident that you speak of was a matter of a flight test airplane, and the subsequent cure to this problem, if we are speaking of the same incident, was to delegate specific areas in which flight test work would be done. This a matter of agreement for airspace.

Conversely, the physical limitations of a particular aircraft under certain weight and temperature conditions are a physical fact over which we do not have any excess control and still stay within the safety limits.

Now it is true, as we became more experienced with certain types of airplanes, we found there were certain things we could do that maybe had not been provided for on original certification. On the other hand, there were maybe things that had been indicated during that time that we found were not acceptable. So we have made corrections both ways.

So I am sure I never intended to close the door toward new development. But legislating against gravity or defining gravity is the thing we have been trying to do for a long time, and with some success. However, the noise problem is something that we have been trying to do something about for a long time, and with some success. But I do not say that we have a perpetual motion machine in either case.

The CHAIRMAN. Well, we have been trying to go to the moon for a long time, too, have we not?

Mr. RUBY. Just about to make it.

The CHAIRMAN. I think there would be hope yet, if that is the case.

General COOK. Mr. Wiley, do you have a comment?

Mr. WILEY. Yes, thank you, General.

Mr. Chairman, I just want to say, as I believe I mentioned in my remarks, in relation to the question of zoning around existing airports, as contrasted with zoning around prospective airports, I agree with Mr. Brown. The huge difficulty of achieving practical zoning around a large airport such as New York International Airport, or La Guardia or Newark, which are heavily built up, would approach financial problems of a tremendous magnitude. Not to mention legal and other considerations. In view of the legal aspect, will this subject be taken up in the meeting on Thursday at which time the government and legal representatives will be present? Because I think there are overtones of that factor in this area.

The CHAIRMAN. Well, Mr. Pogue has been in the audience most all day, but I would be surprised if this were not to become a question of discussion. Those who have made a thorough study and analysis of the law, I assume would discuss this.

Mr. WILEY. Thank you, sir.

General COOK. Mr. Brown, has any consideration been given to planting vegetation around your airport, such as was done at Dulles?

Mr. BROWN. General, some years ago, we went into this with people involved in the community at the end of runway 1–R, namely, Millbrae. The only area available was our own buffer zone, which is adjacent to the community which is now building apartments right up against the last area that they have and the end of runway 1–R. We looked into the planting situation, but did not feel that it would bring relief, because it was so close. We are within 800 feet of the community. We have gone through months and months of engineering studies looking toward the possibility of building a so-called wall at the end of the runway. It got to a point where, in an effort to cooperate with the community, we set aside $200,000 toward engineering and construction and the feasibility of that. However, again, it came to a point where it was unacceptable from the standpoint of safety and flight standards. The airline pilots working with us on the sound abatement center finally indicated that this project was not acceptable and at the present time, although we still hold those moneys aside, we are making no efforts to proceed with the wall.

General COOK. Does any other member of the panel feel they can contribute to this subject?

Mr. WILEY. On the subject of planting around airports, I believe that Mr. Karl Kryter of Bolt Beranek and Newman, a recognized accoustical engineer will be on the panel tomorrow. I feel if the question were directed to Mr. Kryter tomorrow, he would say that to be effective, a planting belt around an airport must be several thousand—I have forgotten the dimension—feet thick before any measurable benefit is gotten from it.

In some airports, the distance between the perimeter of the airport and the areas that are desired to be protected are too small to permit that width of planting. I think it is a very happy planning device that has been adopted at Dulles International Airport.

General COOK. Mr. Chairman, there is one subject that has not been discussed. It has been mentioned a couple of times. That is the sonic boom in connection with the operation of supersonic aircraft. There is no question but that that phenomenon will be present when the supersonic aircraft is developed and is introduced into

airline operation. Tomorrow's panel, the technical panel, will be prepared to discuss that subject also, which we have not touched upon here today in any detail. But I wanted to mention the fact that it is an important consideration in your noise procedures.

The CHAIRMAN. I appreciate your mentioning that, General, because the committee has received sharp complaints around the country with reference to sonic booms. I suppose the military is more involved than commercial people.

General COOK. They are at this time, sir.

Does any other panel member have anything to add?

The CHAIRMAN. I think the staff has two or three questions.

Mr. CONWAY. Captain Ruby, in your explanation of the average flight, you mention the cutback on the power after take-off. We have an unverified report of a Canadian city, that has a regulation requiring that to be done at a certain altitude. In your judgment is that a compromise with safety?

Mr. RUBY. Under certain conditions, it can be, and unfortunately, in an operation of that type, what you usually do is move a noise level from one spot to another spot. And I tried to cover that in citing the problem in reaccelerating an aircraft once it has started to decelerate, or, on the other hand, stabilize its condition. It takes a tremendous amount of power to start a reacceleration program. The reduction of thrust, while still in the climb attitude, has the general end effect of starting a deceleration condition. Then, to overcome this physical fact, it takes a tremendous amount of thrust to overcome this deceleration condition and to start reacceleration. The end result is that you have built up an increase in noise further along the flight path as you reapply sufficient power to start reacceleration.

Mr. CONWAY. There has been some correspondence and other writings on what is known, I think, as the idle thrust approach, is that right, or idle throttle approach?

Mr. RUBY. Yes.

Mr. CONWAY. I wonder if you could explain the mechanics of this approach to the committee?

Mr. RUBY. Yes. To do this with a jet airplane and to accomplish it successfully every time you would, for practical purposes, have to have a DME installation in the airplane and be able to establish a flight pattern with a known distance away from the touchdown point on the runway. Now, it is true that an individual pilot can make a judgment on this and probably, after practice, 50 or 60 percent of the time, he might be able to accomplish it. However, in actual practice, this has not been a thing you could live with on a consistent basis by virtue of the fact that the traffic problems around a particular airport, and the requirement to follow a devious path in many instances, preclude you from prejudging your ability to arrive with sufficient speed and altitude to continue the descent with a closed throttle and never have to reapply power.

Mr. CONWAY. Is that basically a closed throttle approach?

Mr. RUBY. Yes.

Now, with a jet airplane, if the sink rate—and by sink rate, I am referring to its sinking tendencies while still in a forward motion—in the commercial airplanes, the most desirable sink rate is between 500 and 700 feet a minute. This generally is evolved from a flight path

with approximately a 2½° slant angle and a 3°, for example, in many cases gets you up in the order of 900- to a thousand-foot-a-minute sink rate.

Well, if this type of a sink rate is indulged upon, in order to fly the airplane and land it with a reasonable touchdown impact requires the reapplication of power. So this means that the approach would have to be executed with the proper sink rate for the full distance, and it would involve entry in the airport area at sufficiently high speed so that the deceleration could occur all the way with the throttles closed. This is an extremely hard thing to do with perfection every time, and the other factors that interfere with such a judgment, and your limitations of speed approaching the area, for practical purposes, preclude it as a method of accomplishment. Even in this condition, you still have the presence of the compressor blind, even in the flight idle condition.

Mr. CONWAY. We find, talking to some of these complainants, that where two aircraft of the same type follow each other, the first will not be objectionable while the second airplane, 90 seconds behind, will be objectionable as far as noise is concerned. Could you explain that?

Mr. RUBY. Well, there are several things that can cause this. The basic fact, that the first airplane produces a certain level of noise, and if the distance between the two airplanes is such that the noise generated by the second one produces a reenforcing secondary wave, you then have what appears to be a greatly increased noise value from the second airplane. This is produced by the reenforcing of the sound wave frequency that happens to be synchronous with the original airplane.

Now, the other condition that could be involved and not necessarily associated with the synchronous wave proposition is the fact that the second airplane may have been obliged to slow down to obtain spacing between him and the previous airplane. To do so, he had to get the airplane aerodynamically dirty. Then to reaccelerate it in order to maintain flight takes a greater application of power than had he been able to maintain the original fixed power setting in the approach. This is not an infrequent condition, either, around the busy airports.

So those are the two primary considerations that would have the effect of the secondary plane sounding louder. In one case, it actually was louder. In another case, it was a reenforcing of sound waves that were synchronous with the first one.

Mr. CONWAY. Mr. Halaby outlined several contracts that the FAA currently has and their objectives. One of them ultimately, it is hoped, will produce a valid aircraft noise measurement. In your statement, you made a plea for standardization of the rules of the road. If the FAA were able to develop a valid aircraft noise measure, would it be impractical, in your opinion, if each community surrounding an airport were to adopt a different measure or use the measure developed by the FAA, adopt a different mark on that scale as to what they consider to be acceptable?

Mr. RUBY. Yes, this would be completely impractical, because each community would then be basing a judgment in all probability on individual opinion rather than scientific research data on the one hand. And I might enlarge to this degree: regardless of what standard is

arrived at, I do not believe that you will ever be able to satisfy the extremes between responses in different human beings.

For example, the response range that you have may be entirely different than mine, and mine entirely different from another person's. I think you are all aware that, for example, certain animals a—dog, for example—has a response frequency that is way beyond the human response frequency. So any standard that is arrived at, in my opinion, at least, would of necessity involve a compromise between extremes in order to arrive at something that would be reasonably valid for all parties concerned.

Mr. CONWAY. But I have to assume, for the purpose of answering my question, that that measurement has been devised as a result of some of these contracts that the FAA has.

My point is, if there is a scale which is tested judicially and found to be acceptable and ran from, say, 100 to 150 would it be impractical if New York City used 120 on this scale and Chicago, because of the physical elements surrounding the airport, used 130?

Couldn't that information be incorporated in the route manual?

Mr. RUBY. Yes, though it would be, I think, valueless in the route manual, because the operating crew as such has no way of knowing what noise production is occurring on the ground from their specific aircraft.

I would say, for example, if some particular city had a runway that was directed out over, say, a body of water, for example, who knows, 175 decibels may be of no consequence, so you would not be concerned. Conversely, if 115, say, had been an established maximum over a populated area, then it would be assumed, at least on my part, that this would apply over any populated area.

Mr. CONWAY. I have one more question, which I would like to address to Mr. Wiley, Mr. Crisp, and Mr. Brown.

Is there no other way than to purchase this land outright to placate these areas that are catching this noise in its greatest impact? Is there some other means of land interest, like easements or the like, that could come cheaper?

Mr. Brown, you used the expression "clear zone." That usually implies clear space for aircraft to navigate through.

Mr. BROWN. That is correct. I think the only statement I could make would have to be confined to my own airport. I believe that on a long-range possibility, it might be that an urban redevelopment program might be worked out. The economics perhaps may be feasible in purchasing whatever homes are in the area, adding to those areas the ownership of the airport's property and then with putting that land together with the land purchased from the homeowners, form a redevelopment project. The homes could then be removed and sold and the entire land redeveloped and put out for industrial use, and then, through sale, get back the original financing.

Mr. CONWAY. But the land would not have to be sterile, like it must in a clear zone?

Mr. BROWN. No, indeed. It comes back to economics. The only possible way you could redevelop would be through economic feasibility. However, I qualified my statement in regard to my particular position at San Francisco. We have studied and are working as a matter of future noise abatement on all of these possibilities. How-

ever, this may not at all be an answer to the problem that Mr. Wiley or that some others, Chicago or Dulles, might have.

Mr. WILEY. In respect to that, I feel that this is somewhat beyond my depth. I am an operating man and an engineer by training. I think this gets into the question of perhaps the difference between an easement and outright purchase and so forth, which perhaps falls more in the legal field. I would think our representative on the legal panel on Thursday might be able to speak to that better than I can.

Mr. COOK. Mr. Conway, I do know that the proposition of purchase and resale with easement has been considered by certain people, people who are interested in making investments. Of course, anything like that would have to assure the investors of some reasonable return for the risk they expose themselves to. The legal panel the day after tomorrow might possibly want to discuss that one, too.

Mr. CONWAY. Mr. Tipton, on these suppressors, I realize that they are installed on these airplanes after they had been designed and developed, but there is a group in the aviation business that are of the opinion that with four suppressors hanging in back of these jet powerplants, that the aircraft's ability to climbout is handicapped. I wonder whether there were any studies made which would compare the impact of the noise on the location between the airplane with suppressors and an airplane without suppressors?

Mr. TIPTON. Yes, the studies were made in the process of developing these suppressors, which gave, and I cannot give you the values here because I have forgotten them, but gave a distinction between the noise produced by a suppressor-equipped airplane and one not.

Mr. CONWAY. I realize that the noise produced by an airplane with suppressors must be lower. I am trying to establish that the noise impact at a given point made by an airplane weighted down by suppressors, as compared with an airplane without that weight which has a greater climbout, must have a greater climbout ability, and if that climbout ability is exploited, what the difference is on this impact?

Mr. TIPTON. I misunderstood your question at first. I cannot answer that. It is a question of balancing the noise suppression of the suppressors against the drag of the suppressor and the effect of that drag on the climb rate of the airplane. It is my impression that the drag of the suppressor is not sufficient to offset the value of the suppressor in that fashion.

Have I answered that clearly? It is a matter of balancing, it was during the development of the suppressors, I have no doubt. But I have the impression that there was and is a net gain.

Mr. CRISP. Mr. Conway, what you want to know is did the suppressor affect the ultimate thrust of the engine?

Mr. CONWAY. No, my concern was the effect of the suppressor on the airport neighbors. Did they actually get a benefit, or was the aircraft brought down to a lower altitude as a result of this added weight. Would this result in just about the same noise as would have been present on the ground had the airplane gone out 200 pounds lighter and been able to climbout that much faster? It seems to me that if there is a penalty being paid by the airlines, it is being paid without proof positive that suppressors are producing a benefit.

Mr. BARNES. I think, to answer your question there, the weight of the suppressors, if it drags the airplane down lower, does the lower distance from the ground offset the suppressing characteristics?

Mr. CONWAY. Yes.

Mr. CRISP. I think that you will find that the weight of the suppressors comes out of the payload and does not, in effect, change the overall gross allowable weight; if, the flight characteristics of the airplane by reason of the weight is not changed. The only effect would be on the possible reduction of performance. But this would be compensated for in turn, if this were severe, by a reduction in the allowable gross weight. I think this is the answer to the question.

Mr. TIPTON. The problem, as I understood it, was the suppressors' effect upon the performance of the airplane. That was your question, was it not?

Mr. CONWAY. Yes, but I think this is the answer. If the suppressors were not there, it would be loaded with something else.

Mr. CRISP. The weight does not change.

General COOK. Do you have anything further, Mr. Conway?

Mr. CONWAY. No, sir.

General COOK. Do you have anything, Mr. Howze?

Mr. HOWZE. Yes, I have three things I would like to pursue.

Mr. Wiley, in your discussion of preferential runways, you made reference to Special Regulation No. 442. Is that a port authority regulation?

Mr. WILEY. No, sir, FAA.

Mr. HOWZE. Flight traffic?

Mr. WILEY. Special regulation 442. I am sorry, sir, I do not know if it is in the Air Traffic Section.

Mr. HOWZE. OK.

Captain Ruby, I do not like to pursue this business about procedures being about as far as we can carry them, but I assume that in making that statement, you assume procedures fully complied with by pilots, is that correct?

Mr. RUBY. Yes, sir.

Mr. HOWZE. There have been indications that the procedures have not always been fully complied with by pilots. This is what I want to get to.

Will you leave safety considerations to the pilots, such as wind direction, weather conditions, that sort of thing, to what extent is the pilot compelled to follow the directions of the control tower, and to what extent has the pilot, being up there among these conditions, some discretion in not using a preferential runway, for example?

Mr. RUBY. Well, in the case of preferential runway, I think Mr. Halaby stated that the present rule is that if the pilot refuses to accept the preferential runway, he is then required to write a letter explaining his reasons therefor. Frankly, the pilots take an extremely dim view of this approach, because it is human nature to avoid writing letters; consequently, sometimes they accept things that are against his better judgment, but rather than get into a letterwriting campaign, he will accept it.

As far as the effect is concerned as to how much latitude the pilot has, a part of his certification as an airline pilot includes the term "Judgment," and it is incumbent upon the pilot to use his best judgment in avoiding anything hazardous that would jeopardize the operation of the flight.

One of the things I cited a while ago, wherein aircraft were taking off in rapid sequence, they keep spreading the turn out to stay away from the wash of the preceding airplane. This is a matter wherein the pilot uses his judgment.

By the same token, the FAA employees, for the most part, who operate in control towers approach and departure controls, are aware of these requirements and they recognize what is being done by the mere sequencing in the time lapse between departures.

So they recognize what is going on and they expect this to be done. This accounts for the latitude that the pilot exercises, and in some cases, he may be obliged to either go below the preceding wash or above it.

If other things preclude his changing course—San Francisco being a good example; you are pretty well boxed in there. You cannot turn because of the hills and you cannot go below. So in some cases, you have to slow down the takeoff sequence to be sure the wash has disappeared.

In other cases, he will have enough latitude to get away from it.

Fortunately, in most cases, the jet engine leaves enough of a smoke trail that he can see where the other wash is. In many propeller airplanes, you cannot see the wash and you have to use your best judgment in trying to give yourself enough room to be sure you avoid it.

But with a jet, it generally leaves enough of a smoke trail that you can see what you are dealing with, unless the atmosphere is of such a nature that it has suspended particles in it, where you cannot differentiate between the smoke and the other suspended particles in the atmosphere.

Then he has to use his best judgment for clearance.

Mr. HOWZE. Thank you.

One final question, this one to Mr. Tipton. Again, it regards suppressors and costs.

You mentioned, sir, I think, that the manufacturers in developing and making your suppressors spent some $50 million, and that the added cost caused by the suppressors cost the carriers some $70 million in their purchases of the airplanes.

Then you mentioned, I believe, $36 million annual estimated operating loss to the carriers. What I would like to know is the extent to which some of this research and development cost of $50 million was passed on to the carriers in the form of the prices they had to pay for the planes, and secondly, the extent to which the carriers have been able to pass along some of that extra cost to them to passengers in the form of fares and to shippers in the form of increased freight rates?

Mr. TIPTON. On the first question, I cannot answer it. I am sure efforts were made by the manufacturers, and probably partially successful, to include in their prices for the airplanes a portion, and the biggest portion they could, I am sure, of the research and development cost they had in the suppressors.

That is the answer to the first question. That is a subject on which General Cook would be more familiar.

Is my answer about right, General Cook?

General COOK. I think it is correct, but specific figures I do not know, either.

Mr. TIPTON. On the second question, I would say that these costs, and we are talking about those necessary for noise abatement purposes, are costs which are over and above the normal operating costs that you would incur to conduct a good air transport service. They are over and above that. They are for a different purpose and we have obviously regarded them as necessarily incurred. The extent to which they have been recovered from fares you could not isolate out, and I think our financial record over the past few years is such that it is plain that we did not recover those noise abatement costs and we did not recover a lot of other costs which we incurred, because the airlines as an industry have been operating at a loss. But I cannot dissociate the one cost from another and indicate recovery. But it is over and above normal costs.

Mr. HOWZE. Of normal operations?

Mr. TIPTON. Over and above normal operations, and indicates to me, and I should think to everyone, of the determination on the part of the airlines to do the best they could to lick this problem.

Mr. HOWZE. I asked that question only because I thought it would be misleading to leave the record in the state that it was and to suggest that $50 million plus $70-odd million represented a cumulative amount or represented losses to the various businesses involved.

Mr. TIPTON. I think your questions are important. From the $50 million standpoint, without regard to how much the manufacturers were able to recover, that is the amount of money that they were prepared to lay on the line, to try to solve this problem, which again is indicative of the interest of the industry in trying to deal with it.

Our expenditures are what we are prepared to lay on the line to try to deal with noise. I am sure they are not the total list of costs, I am sure, if we were to set out to analyze them.

General COOK. Do you have anything more you want to say, Mr. Tipton?

Mr. TIPTON. No, thank you.

General COOK. Mr. Howze?

Mr. HOWZE. No; that is all I have, thank you.

General COOK. Mr. Chairman, on behalf of this panel, I would like to express our appreciation to you for having the privilege of appearing before you and the members of your committee, and I hope that our discussion has brought forth some factual information that will be useful for your purposes.

The CHAIRMAN. Thank you, General Cook and all members of your panel.

On behalf of the committee, let me express our gratitude for the tremendous presentation that you have made here today. It has been wholesome, in my judgment, and highly stimulating. I think it has given us a very good start from the standpoint of the operational side.

I look forward with a great deal of interest to tomorrow and Thursday for the two other phases.

I know that each of you have been caused some inconvenience and have sacrificed your time to be helpful to the committee and to the Congress, as well as to the general public so tremendously concerned with this problem.

I personally, as well as for the committee, wish to thank you for your cooperation and presentation given today to the committee.

I am sorry if we have kept you here overtime, but you can see the interest by the questions, and certainly we have seen the interest by the discussions among the panel itself. So we give thanks to the panel from the committee. It is a pleasure to have had our colleagues with us.

Mr. Pucinski?

Mr. PUCINSKI. I wonder if I may impose on the committee for just a few seconds to thank you and your committee members for making it possible for us to attend this hearing today. I think you have certainly assembled some of the top men in the field to discuss this problem. I wish to thank you, Mr. Chairman, in behalf of the half million people whom I represent in the 11th District of Illinois, and whose lives have changed considerably with the advent of the jet age. There are 15 major airports in America that have a jet problem, including O'Hare Field just west of my district. Therefore, I think you have performed a real service today for some 30 million Americans who live near these airports and whose lives have been changed by jet operations in their communities.

I would like to thank you for two things, Mr. Chairman: No. 1, that you do not share some of the pessimism we have heard here today regarding the fact that this jet noise problem is without any apparent solution. I was very much impressed when you stated that if we look hard enough and all worked hard enough, there are some answers.

The other thing I am extremely grateful to you for, and I hope the FAA and the CAB will take this concluding statement you made at the conclusion of Mr. Halaby's statement, where you sort of lowered your own sonic boom today and said the responsibility to abate jet noise does lie with the FAA and the CAB. They have the laws and they have the authority and I hope they will pass this down to the field so that the people at the local levels know how the chairman of this committee, who presided over enactment of the 1958 act, feels about this. Because I think there is a tendency at the local levels to sort of pass this off, that this is really maybe a local problem. I was very much impressed with your statement that the Federal agencies have the responsibility and they have the authority to do the jobs.

I think that some 30 million Americans, if they hear about your statement today are going to be very, very much encouraged to know that the chairman of this committee has taken that position, because only then can we really start looking and probing for the answer to this problem.

So I want to thank you for making it possible for myself and my colleagues to be here. I am sure the people of my district are very grateful for the leadership you are showing here today.

Mr. HALPERN. Mr. Chairman?

The CHAIRMAN. Mr. Halpern.

Mr. HALPERN. I would like to say that I share the expression made by my distinguished colleague from Chicago, and other guests here today. I want to thank you and I am sure I speak for my distinguished colleagues from Queens, who were here up until a few minutes ago and sat here all day today taking in these hearings. I want to particularly commend you on the way that these panel discussions have been conducted. They have been conducted in a

most admirable way. I am sure they will prove to be most enlightening, interesting, and, of course, informative, and I hope productive.

I think of particular significance was a statement made today by the FAA Administrator that Congress, if concerned on this matter, should pass legislation to prescribe what is the national will in this matter. I am sure that this committee report in the legislative history established through these hearings and any legislation that will emanate from it, will be—will express the national will.

Again, I want to commend you and I know I speak for my colleagues from Queens. Thank you very much for this privilege of sitting in, even though I am not a member of the committee, but as one who is vitally concerned with this problem.

The CHAIRMAN. We do appreciate your being here. We are glad to have our colleagues sit in in the interest of your constituents. I say to our colleague from Chicago, I did not mean to simply there was not a responsibility on the local level as well as with the FAA. I want that to be made very certain, too. I think we all have a responsibility.

General Cook, again, to you and your very fine panel, thank you for your very fine presentation and the record made here today.

The committee will adjourn until 10 o'clock tomorrow.

(Whereupon, at 5:15 p.m., the hearing adjourned until 10 a.m., Wednesday, December 5, 1962.)

AIRCRAFT NOISE PROBLEMS

WEDNESDAY, DECEMBER 5, 1962

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TRANSPORTATION AND AERONAUTICS
AND SPECIAL SUBCOMMITTEE ON REGULATORY AGENCIES
OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittees met, pursuant to recess, in room 1334, Longworth Building, Hon. Oren Harris (chairman of the committee) presiding.

The CHAIRMAN. The subcommittee will come to order.

Yesterday when the subcommittees opened their hearings in the form of panel discussions to which this entire week has been allocated, we had a very good session, and the record that was made by the first panel, which was referred to in this series of discussions as panel I, Operations, was moderated by Gen. Orval Cook. I was very pleased at the fine record that was made and the discussions that resulted out of the group of yesterday.

Today we are very glad to have as the second panel an outstanding group of people. The members of this panel consist of engineers in the field of acoustics, aerodynamics, and propulsion. In my judgment, we have gathered together in this field the most outstanding group of both technical and scientific people. We are going to get a great deal of information. I am expecting a record to be made from this group that will be highly beneficial to us.

I must confess, so far as I am concerned, that we will probably get lost in this session because of the technical features of this subject.

We are fortunate that Mr. John Stack, who is with Republic Aviation of Farmingdale, N.Y., has agreed to moderate this panel. I am very pleased that we have someone as experienced and as familiar with the subject as he. For that reason, I am sure we can make a much better record of this subject.

So let me thank you, Mr. Stack, at the outset and all of the members of the panel for your willingness to come here and contribute to this highly important problem.

We will pursue the same announced proceeding that we followed yesterday, that is, the moderator may present for the record the members of his panel and identify them and then proceed with the discussion. I want to say that if there is anyone who takes a different view of any question, you are at liberty to challenge your associates on this panel. In that way we can get the independent view of everyone. We want you to feel free, either working together as a group or individually, to express yourselves on these matters in an effort to obtain maximum benefit from these hearings.

You may proceed.

JOHN P. STACK, Moderator

DR. KARL KRYTER	**JAMES WOODALL**
DR. VON GIERKE	**MATHA M. MILLER**
HARRY A. HOWELL	**DR. RICHARD K. COOK**
DR. PAUL S. VENEKLASEN	**FRANK W. KOLK**
JOSEPH K. POWER	**DR. SPIRIDON N. SUCIU**
HARVEY H. HUBBARD	**JOHN M. TYLER**

Mr. STACK. Thank you, Mr. Chairman. In the interest of saving time I will not go through a detailed autobiography of all of the members here except that I would like to say this at the outset: I do not think that we could get a more competent, more experienced group on this problem than is here today. No matter where you would seek a group of this kind you would find most of the same men on hand. They have been working on this problem for a number of years, many of them, and while you and I know, as do the airport operators, that we do have a noise problem, I can assure you, sir, that it would be far worse if these men you see here today had not been working on this problem. They have made significant advances over the years.

I would like to start, beginning on my left, with Dr. Karl Kryter, of Bolt Beranek & Newman, Inc.; next Mr. James Woodall, of General Dynamics; Dr. von Gierke, of Wright-Patterson Air Force Base; Mr. Matha M. Miller, of Douglas Co.; Mr. Harry A. Howell, of the Boeing Co.; Dr. Richard K. Cook, of the Bureau of Standards; Dr. Paul S. Venekalasen, Western Electro-Acoustics Laboratories, Inc.; Mr. Frank W. Kolk, of American Airlines; Mr. Joseph K. Power, of the Federal Aviation Agency; Dr. Spiridon N. Suciu, of the applied research of General Electric Flight Propulsion Division in Cincinnati; Mr. Harvey H. Hubbard, of the Langley Research Center, NASA, who has been a leader in this business from the Government standpoint for a number of years; and Mr. John M. Tyler, of Pratt & Whitney Aircraft Division of United Aircraft Corp.

As a start, Mr. Chairman, we met previous to this meeting and we have certain review material to form the basis of our review and discussion today, and we will open first with Mr. Hubbard, who will touch on what are some of the fundamentals of the noise problem. Mr. Hubbard.

Mr. HUBBARD. Mr. Chairman and gentlemen, with your permission I should like to use these charts.

The CHAIRMAN. You may proceed as you like.

Mr. HUBBARD. I would just like to say that my mission here is to discuss the nature of this airport noise problem, particularly with regard to the physical aspects of the problem and to say something about the nature of noise and something about noise measurement.

In the business that I am in it is helpful to break down the problem, into its ingredients, so that we can better define our research objectives. I will try to do that with the aid of chart 1.

There is the noise source which is the aircraft in this case, and the observers or the objects which the noise affects. These might be individuals or groups of people in the community.

And then there is the transmission path, the way that the noise gets from the source to the observers.

These are elements of community noise problems.

The source noise variables are listed here in chart 2. If we were to attack a noise problem from the standpoint of making it less objectionable, one of the obvious things we could do would be to try to reduce the noise level.

Another approach might be to change the frequency content. You heard yesterday briefly that certain frequencies are noisier than other frequencies. We will be hearing more about that in the discussion this morning.

Our noise sources are highly directional; that is, there is more noise propagated in certain directions than in other directions. If we had some way of controlling this radiation problem this would help.

And then there is the time function. Other things being equal, if the noise persists for a longer period of time it is generally more objectionable than if it persists for a short period of time.

And there are the number of occurrences within a certain period of time. And, also, the time of day of the occurrences.

Then there are the transmission path variables as listed in chart 3. In regard to this transmission path variable problem the most obvious thing that we can do here would be to separate the source from the observer by a greater distance. There was some discussion of this yesterday, also. This might be accomplished by flying the airplane at a higher altitude; it might be accomplished by making a turn and flying by the area at a greater lateral distance, or from a long-range point of view zoning could be useful.

The vegetation and the terrain are most significant when we have a noise source close to the ground so that the noise propagated is generally parallel to the surface of the ground, as in the case, for instance, of an airplane being run up on the ground.

Some mention was made of vegetation yesterday, and I think it deserves further comment. We know that dense vegetation will add to the noise attenuation.

The CHAIRMAN. It will what?

Mr. HUBBARD. It will add to it—it will give us some additional attenuation. However, if there are a few trees and shrubs they would not be expected to give us any substantial noise reduction. In this case we are thinking more in terms of belts of vegetation that would be one-half mile or so in depth, which might be something of an order to consider.

The terrain features, such as hills, might protect certain areas.

The varying prevailing winds are important, because noise propagates better downwind than upwind.

And the presence of artificial barriers is important. An airport usually has large buildings, or we might erect wall barriers.

The community physical variables are listed in chart 4. Again, also, the location, that is, the relative location is important—location relative to the airport—relative to takeoff and flight patterns.

These next two go together. The type of activities in the community largely determine what noise is there already. For instance, in industrial types of communities we have generally a higher noise level than in residential communities. And if we added some noise

to what is already there, it would probably not be as objectionable in the industrial area as in the residential area.

With regard to the types of building construction, if our observers are indoors, of course, the type of construction is important and also—whether the windows are open or closed—whether we have double windows; whether we have central air conditioning.

To this list should be added several others, of course. I have only listed the physical here. Some of these were touched on yesterday, the political and economic and sociological, and those will be dealt with by other speakers.

Let us refer again to the elements of community noise problems shown in chart 1. We can say, so far that in each of these three categories diagramed here—noise source, transmission paths, and observers—there are many variables involved and these are rather complex in nature. I predict there will be discussion on each of these by other speakers.

It might be well to mention that the noise source is the main topic of the remainder of my talk.

The CHAIRMAN. If you will, talk up just a little bit.

Mr. HUBBARD. Yes, I will.

The noise radiated by one of our jet engines, if we could gather to gether all of that power and use it, would be the equivalent of the power that it takes to drive one of our automobiles. This might seem like a lot of power, but it turns out to be only a small fraction of the total engine power. It is just a fraction of a percent of it.

I would like to say a little bit about the types of noise that we are dealing with in this problem.

I have some schematic diagrams here on chart 5. First of all, I would like to make the point that our ears respond to pressure, particularly pressure variations. Noise varies the atmospheric pressure. And I have indicated here, first, on the top, about the simplest type of noise that we can think of; that is, the discrete frequency and this has a constant pitch or tone. And as I have shown it, it has a steady amplitude.

This is a random noise [indicating]. This does not have any characteristic pitch or tone and is made up of a lot of different frequencies and it does not repeat as the discrete noise does.

This is a transient noise [indicating]. It occurs rather suddenly and persists for a short period of time and then ceases. This is suggestive of a sonic boom.

In our community noise problem near the airport we are not dealing with any of these noises in their pure form. We are dealing with some mixtures. In this case, referring to the discrete, we are more than likely dealing with several discrete tones or we might be dealing with a combination of these two: discrete and random noises. So it is rather a complex exposure that we are considering.

In addition to this, since we are dealing with aircraft, the level of the noise starts low and builds up and then decreases, so that there is a time variation in addition to the tones shown here.

In addition to this time variation there are a couple of other features of the noise that are important to us and I will try to touch on those in a few moments.

One is the amplitude or the intensity, if you will, the loudness.

There was some talk about noise level yesterday. I will not go into technical definitions here, except to say that we use this decibel scale indicated here in chart 6 as a noise level reference. One decibel is usually about the amount of variation that the average person would perceive. One decibel difference in an ordinary level is something that we can recognize.

The CHAIRMAN. What is a decibel?

Mr. HUBBARD. I am sorry that you asked that question. I was trying to avoid that. [Laughter.]

It is a logarithmic unit that we use as a reference. The decibel is defined as 20 times the logarithm to the base 10 of the ratio of the pressure of the sound to a reference pressure. This reference pressure is taken arbitrarily to be 0.0002 dynes per square centimeter and this corresponds to a sound-pressure level of zero decibels which is way down at the bottom of the scale of chart 6 at about the limit of perceptiveness of the human ear. There are two terms. We refer to the pressures. They are converted either by calculation or by measurement to the logarithmic scale and are expressed in decibels.

Mr. STACK. What it is, it measures a certain pressure—it measures the pressure variation that occurs from the sound wave when it comes through and this is a particular unit of the measurement that fundamentally is a pressure measurement.

Mr. ROGERS of Texas. What is the breakdown of the word—I mean, "d-e-c" means tenth?

Dr. COOK. One-tenth.

Mr. KOLK. A bel means Alexander Graham Bell—it is an arbitrary unit. It was a little too big for handy arithmetic, so that they whacked it up into 10 units—10th of a decibel.

Mr. ROGERS of Texas. What size bell? A big bell or a small bell?

Mr. KOLK. It is just a thing—it has no physical meaning in the sense that it is a specific force by itself, but it is the ratio of something else. Everything is in terms of ratio. If you have 10 or more decibels it means that you have 10 times as great a pressure or power.

The CHAIRMAN. As used here, it is in terms of resonance?

Mr. KOLK. It is a measure of what your ear hears, instead of what the microphone reads.

The CHAIRMAN. You may proceed.

Mr. HUBBARD. Well, I have indicated some numbers here in chart 6 so that I can key these in with community activities. Most of us are familiar with these. A quiet room in a building is in the order of 60 in decibel rating; a busy office is up around 70; and highway and train traffic, and so forth, are higher on the scale, up close to 100. Then there are several industrial activities that are high in themselves. Unfortunately, aircraft noises are up near the top here, although they are not the highest on this scale.

I would like to make the point that these activities, when we go out to measure them, do not always fit exactly where I have them on the scale, but many times they do.

This, of course, is the very simplest way in which we could measure or describe sound, just confining it to a simple number as indicated on chart 6. We get into difficulty here, because it is easy to conceive of a situation where we might go out and make a noise measurement of a

certain activity in a community location where some entirely different activity might give the same decibel reading. And if you made this measurement and just gave me the decibel number I would not be able to tell which activity it was, but if I went out there and listened, of course, I could interpret this and identify one with respect to the other. So usually the more information we have to the number it simplifies the problem.

In addition, there is a time variation on the decibel level which is the frequency.

In chart 7 are indicated a couple of different noises by different curves on the chart. I have indicated the noise level over here and the frequency on the bottom scale. Here we are dealing with a frequency scale that is conventionally used in this type of problem, but for those who are not really familiar with it, it is a little difficult to comprehend. It might help to say that this is not too much different than a piano keyboard, because the low frequencies are here [indicating] and the high frequencies up at this end [indicating], and the middle C would be somewhere near the center [indicating].

Let us look at this area of the chart in the middle for just a moment. We are taking all of the noise components within a certain frequency band, in this case 300 to 600 cycles, and we are filtering these out and separating them, and then adding up electrically the noise in this frequency region. Our instruments give us the data point here [indicating]. We can do the same for these others and we can connect the points and get a spectrum which I have shown here. We can go farther than that and sum all of these up and get an overall reading which is the same as the sound pressure level I was talking about on the previous chart.

These particular noises each have the same overall level, however one has more low frequency content and less high frequency content than does the other. This is significant from the standpoint of how people are annoyed. And one of the other speakers will be saying more about this later.

In regard to measurements I would like to say that measurements, that is, noise measurements, are common practice these days. They are being made by a large number of groups over the country. They are used for several reasons.

First, we might want to document the noise in a certain location—we might want to describe the noise to someone else, or we might want to capture the noise in some way to take it back into the laboratory and to try and analyze it for other purposes—that is, for analysis purposes.

So one way that this can be done very simply is by the use of a sound level meter which consists of a microphone and an integrating meter, as indicated in chart 8. This is, probably, about the simplest way that we can make a noise measurement. The advantage here is that the equipment is relatively inexpensive—it is lightweight and reliable and portable and it can be used by relatively inexperienced people. Most anyone in this room, I dare say, following instructions, could make this kind of measurement or summation. But realizing that in many cases we need more information than we can get from just a simple meter indication there are several systems for getting more information. One that is in favor right now involves the use of a magnetic tape recorder. This is very useful because it captures for

us the noise just as it exists in certain locations and all of the time elements are in it correctly. And we require that.

The type of analysis we make can take several forms, although, in general, it is the frequency content of the noise, and then having this information that is used in some computing network to weight it. Another speaker will have something to say about this.

Just to sum up this last part of my presentation, I would like to make a point that our ability to make physical measurements, I think, is very good. We do not need any technical breakthrough, certainly, in this area to have meaningful physical measurements. It may be, however, that it will not be so easy to agree that we know exactly how to interpret these, once we make them.

Thank you.

The CHAIRMAN. Will the charts be made available for the record?

Mr. HUBBARD. Yes.

The CHAIRMAN. Thank you.

(The charts referred to by Mr. Hubbard follow:)

CHART 1

ELEMENTS OF COMMUNITY NOISE PROBLEMS

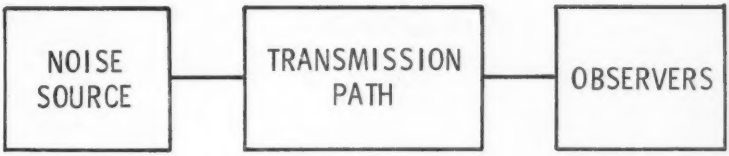


CHART 2

SOURCE NOISE VARIABLES

NOISE LEVEL

FREQUENCY CONTENT

DIRECTIONAL PATTERN

TIME DURATION

NUMBER OF OCCURRENCES

TIME OF OCCURRENCES

CHART 3

TRANSMISSION PATH VARIABLES

- DISTANCE
- VEGETATION
- TERRAIN
- PREVAILING WINDS
- PRESENCE OF ARTIFICIAL BARRIERS

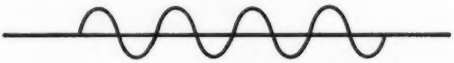
CHART 4

COMMUNITY VARIABLES (PHYSICAL)

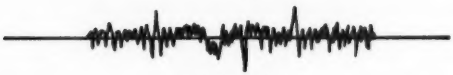
- RELATIVE LOCATION
- AMBIENT NOISE CONDITIONS
- TYPE OF ACTIVITY
- TYPE OF BLDG. CONST.

CHART 5

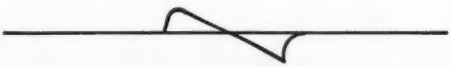
TYPES OF NOISE PRESSURE TIME HISTORIES



DISCRETE



RANDOM



TRANSIENT

CHART 6

SOME COMMUNITY NOISE LEVELS

	NOISE LEVEL, DB
CHIPPING MACHINE (CLOSE BY)	120
AIRCRAFT FLYOVER (500 FT)	
TRAIN – (100 FT)	100
HEAVY TRUCKS – (25 FT)	
FREEWAY TRAFFIC – (25 FT)	80
BUSY OFFICE	
QUIET ROOM	60
	40

CHART 7

FREQUENCY SPECTRA

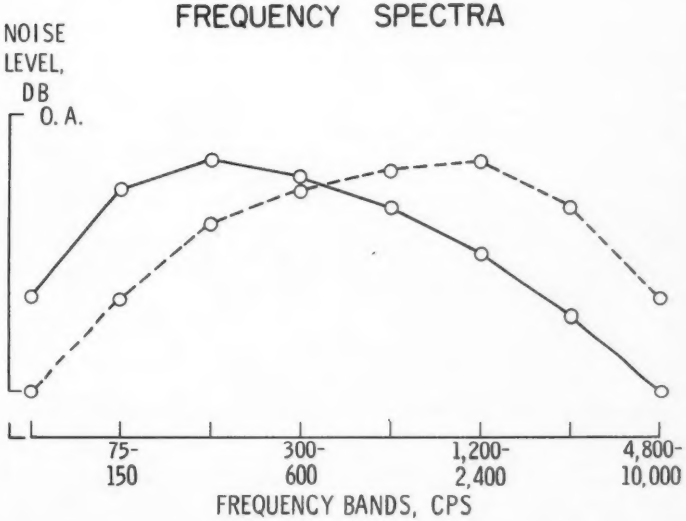
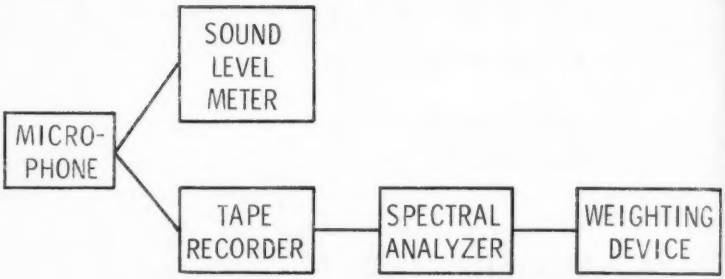


CHART 8

NOISE MEASURING INSTRUMENTS



Mr. STACK. Would you like to pick it up at this point, Dr. Kryter, on the frequency bands, et cetera?

Dr. KRYTER. Mr. Chairman and members, for purposes of discussion the problem can be divided into three parts:

The first one has to do with the physical measurements of the noise and Dr. Hubbard has covered that.

Secondly, the question is, How do we transfer these physical measurements of sound into units that are meaningful in terms of people; that is, how do people respond to these sounds?

The first attack upon the psychological aspect is to get a fundamental unit of measurement of how the ear, the human auditory system, responds to sound. We are, so to speak, calibrating the average ear as to its response to acoustic energy the same way that physical instruments are calibrated. And I think it is very important to note here that while there is, certainly, a relationship between how physical instruments respond to sound, the human ear does not respond in exactly the same way. As a matter of fact, there is considerable divergence.

We are speaking not of how people respond to sounds that have meaning for them, but how the human ear responds to differences in the strictly physical aspects of different sounds.

A lack of knowledge about the conversion from the physical decibel value of a sound to a measurement unit that is more closley related to how the human ear responds to the sound has in the past been the source of considerable trouble and confusion.

I would like to disagree with Mr. Kolk about the decibel being a unit that says how people respond. I think it is not that. It is a physical unit. It refers to the zero level, which is the level at which the ear first hears, and beyond that, it is strictly a physical measure of sound pressure.

Now the problem in the past has been that you may measure a wide range of sounds with a meter and get decibel readings that are the same and yet find that the listener hears them as very different;

and the difference here is again not whether they like or dislike the sounds. The sounds have a different magnitude with respect to their subjective noisiness that is independent of the meaning of the sound.

We will discuss later how we evaluate sounds when the sounds have meaning to people, but our first job is to try to measure sound physically and then convert these physical measurements into a unit that is calibrated in terms of the human ear.

To skip most of the psychophysical methods, such as loudness, that have been used in the past to evaluate sounds, let me say that a unit that is being used now fairly currently in the evaluation of aircraft noise is called the "perceived noise level" (P.N. db.). The P.N. db. units measure the perceptiveness of the human being for noise. The word "noise" indicates that the sound is unwanted and the "level" tells you what is the relative magnitude.

At the onset of the introduction of jet aircraft into commercial operations, it was stated that the sound pressure level, as measured on a standard sound level meter, from jet aircraft was no greater than that from propeller-driven aircraft and, hence, by implication, no noisier. However, experiments conducted in this country and abroad definitely prove that with more appropriate measuring procedures than that of the standard sound level meter, such by perceived noise level, the sound from a jet aircraft in communities immediately adjacent to airports (approximately 2–3 miles from runway) would be subjected to about a 100-percent increase in noisiness over that previously experienced from the typical propeller-driven aircraft. This finding has been amply demonstrated in laboratory experiments and field experiments and provides a partial explanation, at least, for the apparent increased complaints and concern about aircraft noise.

One physical characteristic of sound that has primary importance to the human ear, as Dr. Hubbard indicated, is that of spectrum, whether the sound is predominantly of a high frequency or a low frequency, whether it is a high pitch or a low pitch. High-pitched sounds are noisier, in general, than low-pitched sounds.

A second is bandwidth, that is, whether the sound energy is concentrated in a narrow band of frequencies or whether the energy is spread over a wide range of frequencies; within limits the wider the bandwidth of a sound, the noisier it appears to be.

Perhaps an analogy with how we see light will be helpful here. White light, as you know, contains all of the colors. If you filter it, you get red and blue out of white. Similarly, with sound, if you have all frequencies present, it is sometimes called white noise; if you filter it, it takes on different characteristics in its pitch.

Our noise environment has become more complicated in recent years with jet aircraft because, in addition to having this general white noise characteristic, perhaps shaped more in one frequency region than in the other, the jets now have strong pure-tone components or "whines" that we hear.

This pure-tone factor, again regardless of what a person knows about the source, or whether he is afraid of it, or whether it has a

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meaning to him, is found to be more objectionable than the same amount of sound energy without the pure tone.

Our methods of converting physical measures to perceptive measures should take this pure-tone factor into account, and this is something that is being worked on. We know a little bit about it. We cannot now say that we can measure this factor with any great success or with any great simplicity. However, we hope soon to be able to evaluate such complex sounds also in terms of P.N. db.'s.

Another major physical factor has to do with how objectionable a sound is that of duration—how long the sound is on. The longer it is on, the more objectionable it becomes. We can, to some extent, evaluate sounds of different duration by the application of certain correction factors to P.N. db.'s.

How do we convert or how do we use these P.N db.'s in order to say something about community response or what people do about noises when they find them objectionable? It is patently obvious that whether a person likes a sound, what his activity is when it is heard, and how often it is presented will have a bearing on the judgment about it.

We need then to elaborate on our perceived noise level measures. There are various methods which have been developed for doing this. Let me try to describe verbally a method that has been developed for doing this and later, when there is a blackboard, we would like to draw a figure for you that illustrates its use.

Essentially, through studying the complaints that people make by telephone or letter in communities near airports, from studies in which sociologists have asked people how they feel about noise, and from indications of what happens in communities where there are industries nearby, researchers have obtained information that gives a pattern or a trend, if you will, of the reaction of the average person to noise.

Mr. STACK. I would like to interrupt at this point. I have a note from Mr. Miller with a little remark on the decibel unit of measure. Perhaps, you would like to tell the chairman.

Mr. MILLER. This is just in the way of getting the feel of the magnitude of this number of decibels that we used. The note to Mr. Stack was this, if we could think of the Federal budget expressed in decibels, with a reference of $1, which is the threshold of earning, like our 0.0002 dyne per centimeter is the threshold, the Federal budget is about 100 decibels.

The CHAIRMAN. We will call that to the attention of the Director of the Budget.

Dr. KRYTER. What I have drawn on the blackboard, sir, is a graph in which the horizontal ordinant is marked off in steps: A, B, C, D, E, and so forth. And on the vertical ordinant we have an arbitrary scale which extends from no complaints registered to maximum complaints and action. This chart is used in the following way:

We start with P.N. db. values which are obtained from converting physical sound pressure level measurements of the noise into P.N. db. units. For example, we may find a neighborhood in which a railroad train makes, let us say, 70 P.N. db.

The CHAIRMAN. That means the projected noise level?

Dr. KRYTER. Yes. The perceived noise level expressed in decibels. Now, let us say that the railroad has 10 passenger trains 10 times a day that go by this house or this neighborhood. So, in addition to the P.N. db. level found each time the train passes, you must take into account the number of occurrences.

Whether it is daytime or nighttime is, also, sometimes considered and equated to the actual level. One multiplies all of these factors together to get a composite noise, a rating which is then used for entering this graph. This tells us how much noise, how much perceived noise, there is over a day in this community. Sometimes it is more meaningful to measure the noise per month instead of just for one day. This is a matter of how much data is available. But these (P.N. db. level, time, duration, and number of occurrences of a noise) are all factors that influence a person's judgment of the objectionableness of noise.

When we go to a community and measure the noise in this way we obtain pionts that we can plot on this graph. When these reach the top, there are often lawsuits about the noise. When the ratings were down here (A, B, C, etc., on the graph), the communities do not complain.

We can, with this method of noise rating, estimate with some degree of accuracy what a community has done with respect to the problem and what we can expect in the future. I would like to point out, however, how variable this method can be. For example, here is a community that, let us say, is only mild about the noise problem. It has this composite noise rating of "E," whereas another community with the same exposure or noise rating is really up in arms about the noise. This spread in behavior is due to the factors of attitude toward noise, how much the community has been exposed before, the general background levels, whether it is something new to them, or old, and the like. There are available a number of interesting insights into some of these factors, how they affect what people do and think about the noise.

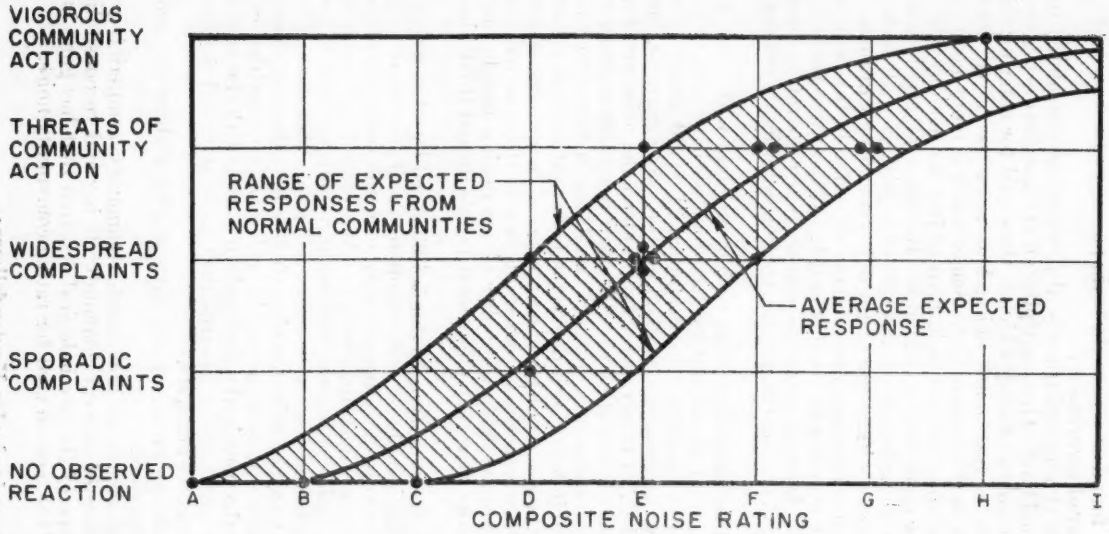
Also, of course, community behavior is influenced by what avenues are available to the people to make complaints. The data on community response to noise have been accrued over the years, sometimes accidentally and sometimes deliberately. We cannot put complete confidence in the noise rating method we have outlined, but it does give us a procedure that seems to be fairly accurate. This method has been used in the past not only for aircraft but for other community noise problems and represents a way in which we can combine in a quantitative way the perceived noise levels of sounds with the number of operations, the number of exposures, the time of day, and the number of occurrences of the noise, etc.

With this picture in mind, we can say something about the probable community response.

The final judgment as to how much community complaining is justified as a matter of general community living and responsibility is beyond the scope of the psychological research that has gone into the derivation of the method used for rating community noise.

Thank you.

(The chart referred to by Dr. Kryter follows:)



THE WIDE CURVE SHOWS THE RANGE OF RESPONSES THAT CAN BE EXPECTED FROM COMMUNITIES EXPOSED TO NOISES OF INCREASING SEVERITY. THE CENTER CURVE IS THE AVERAGE RESPONSE. COMMUNITY RESPONSE IS ASSESSED ALONG THE ORDINATE. EACH POINT REPRESENTS A CASE HISTORY OF NEIGHBORHOOD REACTION TO NOISE.

The CHAIRMAN. What you are saying, as I understand, is that it is really a problem of saying that the noise level is different in one community than it would be in another community.

Dr. KRYTER. Yes; that is true. Part of this may be due to the fact that our measuring units are still not precise enough; we cannot say that we could not make this curve a little more accurate if we had better units. Even if our measuring and evaluation techniques were improved to the utmost, there seems to be little question that different communities would react differently, but there is an upper limit and, probably, a lower limit, and the more accurately our measuring methods are, the more precisely can be determined these limits.

Mr. ROGERS of Texas. Does not that mean, to a certain extent, that you might have a greater number of more sensitive individuals in one community than in another?

Dr. KRYTER. I think that the range in the curve is, certainly, partly a result of that fact. Also, as I mentioned, the opportunity for people to express themselves enters the picture. In some sociological studies, investigators asked people how they felt about the noise in their neighborhood. The investigators did not wait for the people to complain. And in these studies the data fell well within the range here shown.

Mr. STACK. Would you like to discuss this problem, Dr. Cook?

Dr. COOK. Mr. Chairman and gentlemen, I would like to return to the question of the quantitative measurement of sound and amplify a few of the points made by Mr. Hubbard. I would like to add a little bit about the decibel in addition to the dollar analysis by Mr. Miller. This is with respect to the use of the camera. I think that we are all familiar with the fact that when you say, "I am going to give the camera one stop more of light," that this means twice as much light on the film, and that one-half a stop means 40 percent more light on the film. And in the same way 3 decibels means there is twice as much sound power. And then with the help of simple algebra we find that 1 decibel amounts to about 25 percent more sound power.

The other aspect of sound—and I am now going to speak about the properties of sound waves which are important in this noise problem is the fact that the sound wave can be divided into significant frequencies. And here again I think that we are all familiar with this fact from our use of the piano or some other musical instrument. We know that as we go down toward the left side of the piano, where the frequencies are low, it becomes harder and harder to hear the bass, and as we go to the right end of the piano it is harder to hear the high frequencies. And in a rough sort of way the most significant frequencies indicated by Mr. Hubbard are those which range between about 100 cycles per second and 4,000 or 5,000 cycles per second. This is not the whole range of hearing, but I hope that this will give you a basis for the range of frequencies which are important in connection with the noise problem.

I would like then to make an important point here, namely, that the basic principles with respect to the generation and propagation of sound through the atmosphere and through building structures, and into the interior of a building, these principles are fairly well known. We could, in fact, give a very good estimate of the amount of sound that might be found inside of a building if we knew in advance the size of the jet engine, the size of the jet which is producing the

sound, and its distance away. And we can take account of the meteorological conditions, the effect of winds, et cetera, and finally the insulation of the building structure. We are then faced with a more difficult problem which Dr. Kryter has just referred to, that is, estimating how this will influence the people inside of the building.

Now when I say that we know these things, I mean that we can combine the known theories about the propagation of sound waves with known measurements, and the two go hand in hand, and thereby arrive at the possibility of getting very good engineering estimates of the amount of sound that penetrates into a building.

Now in order to give you a little more feel for this, I would like to point out that the sound which you hear, as I speak here, the intensity of the sound that reaches your ear is measured, as Mr. Hubbard pointed out, in terms of pressure. We are all familiar with the reading of a barometer which reads the barometric pressure. The sounds that you hear correspond to a small increase and decrease of the barometric pressure. It only amounts to 1 part in 1 million, but on the decibel scale, which was introduced earlier, the level at your ear, as you sit listening to me, is about 65 decibels or so.

Another element with respect to the prevention or amelioration of the noise problem inside of a building caused by aircraft is the fact that it is difficult to insulate against sound waves, for this reason, and that is, that sound waves are produced almost exclusively, or I will say actually—well, actually exclusively by the motion of something material, either a solid, sometimes a liquid, or in the case of the radiation of sound from the jet or the jet engine, of the turbulent motion of the jet. Conversely, when the sound wave falls, for example, on a building structure, it produces motion of the walls, which in turn, will produce more sound inside of the building so that the situation is much different from the case of light where we all know by waving your hand you do not produce any light but, on the other hand, I do produce a little bit of sound by waving my hand back and forth, although it is so small that we cannot hear it, but there is in effect some sound produced. And so, therefore, we can easily insulate against the light coming into a room by putting blinds on the windows, but it is much more difficult to insulate against the waves of sound because the waves would fall upon the walls, and the walls would move and, in turn, radiate sound into the interior.

I shall then finally try to give you a feeling for what is known about the insulation of buildings. Mr. Hubbard covered fairly thoroughly the physical aspects and we will, probably, hear more later about how a jet produces sound. And he touched also upon the transmission of sound. I would like to supplement that. I mean, transmission from the source to the building or the location where the noise is going to be disturbing. I would like to give you a feeling for how we can insulate a building against the intrusion of sound. And here again may I repeat that much work has been done on how to prevent sound coming into the inside of the structure by what we call soundproofing.

We divide the problem into two aspects. One of them is to prevent the sound from getting into the room. We call that insulation. And the other is to prevent the sound once inside from rattling around, such as occurs in this room. The prevention here or the reduction is

by the fact that we have carpeting on the floors. Here we do not have any treatment on the ceiling. There is often treatment in public rooms, for example in cafeterias and in offices, to prevent the sound from rattling around, once it enters the room from the outside.

Therefore the quantitative measurement of the efficacy of an absorbent material, for reducing sounds, is on pretty firm ground; in fact, these techniques are so well known that they have become embodied in standards which now enjoy a certain amount of international use. My remarks apply also to standards for the prevention of the transmission of sound through a building wall or the measurement of what we call technically insulation of the wall. These techniques are so well known that they have become embedded in various national and international standards.

The facilities which are available at our own laboratory in the Bureau of Standards as such that we can readily measure the amount of sound transmitted through a building structure. Such facilities do not, as I see it now, require any modification in order to arrive at information on the use or on the design of new structures or on the properties of new materials that might be developed. We have the facilities and the means for measuring sound insulation, and it would be a simple matter to set up a program for measurement if it was deemed desirable to determine the specifications that would be the most desirable for use in buildings around an airport. And as you know, this has been done to some extent already.

With respect to the source of the sound, the people in NASA and the engine manufacturers as well, have facilities for measuring; that is, for making measurements on a full scale, if you please, of jet engines. But I would like again to emphasize the main points, that is, that we have the capability of making quantitative measurements of the sound, by pointing out that this can be done also on models; in other words, with respect to jets, at least, we can with very economical laboratory arrangements, supplement full-scale measurements with those made on models. This is not possible, however, in building structures, because the complications in the structures are such that they cannot be effectively reproduced in a model, at least, in respect to the insulation of the walls, although here again we can make use of models with respect to the use of absorbent materials on the walls and the ceilings in order to alleviate the noise inside.

Now, finally, I will just give you a quick idea as to what the results of the many measurements have been on structures suitable for reducing sound. I will not attempt to give you any quantitative data here, but it is an interesting thing that has come out of these observations made over a period of many years; that is, that the amount of insulation—here again being expressed in decibels, because it tells how much or what fraction of the sound comes through the walls—it was found many years ago that the weight or the thickness of the wall is the most direct or rather the most simple property of the wall which tells how effective it is in reducing the amount of sound that comes through.

Then further investigation disclosed that if the walls were split in two pieces this would be even more effective and, especially, if there is further insulation in respect to the windows. There is a truck out there right now, outside of this building, and I am pretty sure

that most of the sound is coming through the window, because as compared to the walls it is very thin. You could probably get rid of the truck noise by putting in double windows.

And so with these remarks I think I shall close.

The CHAIRMAN. You should have gotten here about 7 years ago.

Mr. STACK. I would like now to ask Mr. Kolk, who has been struggling with this in and out of airports with airplanes to pick up the point here since we have now to find out what some of the problems are.

The CHAIRMAN. You may proceed, sir.

Mr. KOLK. Mr. Chairman and gentlemen of the committee, the problem that we are really here to discuss today is one that existed before, and involves going back a little bit into history, which presumably is going to be a repetition of what you heard yesterday—but it has to be put forth with a different viewpoint.

In viewing this problem I look at it now from the point of view of a technician, someone, that is, who has to do something about it from a long-term standpoint, rather than from the viewpoint of the fellow who has to go down into one of these noise-sensitive areas and "do something about it tonight"—because that is what everybody is yelling and screaming for—"do something now."

There are two elements to this. One is the short term. The other is the long term. And I will talk about the long-term element. As I say, I approach this from the point of view of the technician.

First of all, we have to remember that any vehicle—any vehicle—is going to produce a certain amount of noise when it moves and as it moves; and that this noise, all other things being equal, is partly a function of how large that vehicle is. And if you double the size of that vehicle, you are going to find that it makes roughly 3 decibels more noise, and this goes on and on and on until you get up to a very large vehicle indeed.

Air commerce started in originally with mailplanes that had pilots and no passengers. Then we put on a few passengers. Then more passengers, and more passengers, and more passengers. Some cargo, and then more cargo, and again more cargo. And so over the years the vehicles got up to very large size, and in terms of the power installed in these vehicles, the power has gone up faster even than the size of the vehicle. That is, we have more horsepower per pound of airplane now than we have ever had before, and we are finding that it is economical to have even more and more horsepower; so that in itself will produce a continually increasing trend toward the generation of noise and more noise.

The second thing is, you know, these problems get bad when you are successful; and we have been reasonably successful in promoting air transportation. There is quite a large number of airplanes in existence today, and the more there are, the more noise is made and, again, this is a factor in creating problems around airports. We cannot do without the airplane in the national economy and we cannot do without the people riding in the airplanes—and it is no coincidence that airports are close to or inside large cities: Because this is where the business is.

Well, now, we can take these ridiculous examples—take the example of moving the airport away from the city. This does not accomplish a darn thing. In the first place, the city will inevitably move out to the airport in the process of civic growth.

When the railroad was the predominant means of transportation, the railroad station years ago was the center of the downtown area, it was down by the railroad station, because they were there first, in general, and the city then grew up around it. And as the air transportation industry becomes the predominant means of transportation, I believe the same sort of tendency is going to go on. So we are stuck with the airport alongside the city, because the city is going to expand, and it isn't going to go anywhere else.

Or take the other ridiculous example, that we ought to move supersonic aircraft out—move people out to them. Well, the only excuse for having supersonic transportation is so you can get from here to there faster. That is, if it does not get you from your home to your destination in a shorter period of time through supersonic transport, then we might as well all hang up our uniforms. For if you move the airport farther away from New York and if you move the Los Angeles terminal out, then every hour that you save in the aircraft is going to be lost in this ground transportation problem—so it is self-defeating.

So we have to make the airplanes and the airports live together in the solution of this difficulty, and this is absolutely fundamental in anything we do from a long-term basis.

All right. Now, we have had several steps in technological improvement. For years and years we drove airplanes around with propellers. The propeller was the dominant source of noise. And over the years we began to understand how the propeller made the noise, what the physical mechanism was and, therefore, this gave us some clues as to how to design propellers so as not to make as much noise. We found, for example, that the tip speed of the propeller, that is, the speed as the tip moves around in a helical flight path and which is expressed in terms of a ratio to the speed of sound, was a very important ratio; and we found that the number of blades in a propeller was very important, and we found that if we could keep the tip speed down, the propeller would not make as much noise, despite the fact that the propellers were being driven with greater horsepower, and the latest examples of that are to be found in the latest turboprop aircraft, such as the Lockheed Electra or the Vickers Vanguard, which have propellers of this type and which are very, very quiet indeed around airports, despite the fact that they have higher horsepower being fed into those than had ever been dreamed of before.

Those are examples of the fact that once you understand what you are dealing with, and have time to do something about it, you can get at it. But it also is a fact that just about the time you learn how to do it, somebody invents a new and better means of propulsion, and we have to start all over again on that technology.

Now, we are at that same sort of point or stage now with the jet airplane as we had been with the propeller airplane. When jet airplanes first came into service there were available only military jets, and these military jets were very, very noisy engines indeed. In the interim we have learned, generally speaking, why these jets make a lot of noise. We have attacked that problem in the design of the engine and we have been able to produce engines which make less noise.

When I say we have been able to produce these engines, I mean

they have been produced and they are in service today. They are the so-called turbofan engines, and the result of the introduction of the turbofan engine has been a reduction in the takeoff noise levels around certain airports of anywhere from 5 to 15 decibels. Ten decibels tend to be the sort of difference you get between them and what you get with, say, a twin-engine Convair and a Piper Cub, that kind or order of difference, and so we have actually produced in certain spots very, very remarkable reductions in the noise of getting off the ground.

And now I want to digress for a moment to show you what the turbofan is, because then I may anticipate some of your questions. The turbofan is a compound type of engine which was developed from the straight jet by bypassing a certain amount of the air that comes in the front of the compressors, scoots it around the outside of the engine, and squirts it outside back in a cold jet surrounding the hot jet, in effect. There are a lot of different mechanical arrangements but the principle seems to be the same, in each case, you have to put an extra turbine on the gas generator and this reduces the pressure of the main jet and slows it down, and the excess power you take out of this extra turbine, you feed that into on oversize compressor which is sort of like a cross between the compressor and the propeller—it isn't quite the one nor the other, but sort of in between, and the end effect is that for a given amount of power released there is an awful lot more air handled by the engine, and when this air is accelerated you have a much lower velocity, lower jet speed, and the lower jet speed is a more efficient propulsion means, and so we get a lot more thrust out of it and a lot less noise out of it.

We have only begun to go down this road but it is very, very important to have started with this type of arrangement, because under the present circumstances in the straight jet, anything you do to make the machinery part of the straight jet more efficient increases the jet velocity, because there is more temperature and more pressure squirted back—and, of course, this makes more noise.

So the design of the bypass engine gives us a mechanism with which in the future we can take advantage of increased efficiency and still not produce the large volumes of noise we might otherwise expect.

Now, to deal with the problems that arise we went through the introductory period of the jet airplane. Here we dealt with a flying machine which produced more noise than its predecessors, such as the DC–7, the Constellation, there was more noise coming out of the machine, it came out at different flight levels in different ways, and the difference was readily identifiable. And through the unfortunate aftermath of a series of accidents near New York City, in and about Newark, there was created a problem in New York where noise, accident, and fear were intimately related, so that people were quite interested in these things. And the calling to attention of the fact that an airplane was up there, by its making a large volume of noise, tripped off a chain reaction which in my mind had a great deal to do with the background of some of this other history in this area—because New York has been a sort of a keystone to the noise problem, and when you talk about noise in specific runways in New York, in Idlewild and other places of that nature in New York City—that came about because the problem has been worse there and the problem has been most complex there.

Now, in the years from the opening, or after the opening of Idlewild Airport, there was a steady encroachment of buildings around the airport, closer and closer to the airport. People have made use of totally marginal land which hitherto had been worthless and because of the increase of land values in the area have found it economic to use it, and there has been a steady encroachment, as I say, on Idlewild and on all the New York airports. In fact, I think it is safe to say there has been an encroachment of housing on every airport we operate at, whether it has a noise problem or not, and this is a fact.

A condition which was totally acceptable 15 years ago from away out of the community is now unacceptable, or at least it is unacceptable to the people who live near the airport in this encroachment process and even if we did not change the quality of the airplanes one whit—we have been subjected to a harrassment process in this, we are in a sandwich, we are the meat in the sandwich that is just being squeezed. And we have to get a solution, a long-term solution because if we do not, it is some day going to blow up.

Now, we are attempting to get that sort of a long-term solution. We have begun to understand why these engines make noise. We have begun to understand that if we follow certain physical principles that we can lay out engines that will in the future radiate less noise; if we put them into the proper kind of airplanes we can further help this matter. And we have a long-term policy which I believe is evident in the industry, that every new airplane, that any new planes that are built generally have better noise characteristics than their predecessors. Take any of the new models of jets—they have shown a steady improvement. If you go out and buy an airplane today you will find that the flight equipment makes less noise than if you had gone out and bought it 5 years ago. And you will find that the louder stuff on the market has been superseded.

What are some of these principles that we have learned? Some of them you will hear more about in detail from some of the other members of the panel. But there are certain important things to keep in mind.

If you study any of these complex noises, you will find that out of each one there is a certain sound source which will dominate the entire noise. This is the noise that you hear and when you remove this dominant sound source, or take it away, then the next most prominent noise source will dominate the remaining noise and you can only make progress by eliminating that noise, and so on, almost forever, because of the multitude of sound sources in the airplane and the airplane engine.

So, what are these sound sources? Well, the one you hit first is the jet itself. The jet is—well, it is quite a large squirt of air going back out, and the faster it goes out, the more noise it makes. Mathematically it can be expressed by saying that noise is relatively the power to the eighth exponent of the velocity, and you can convert that back into the decibel scale, you can make a plot of these [indicating on blackboard] with a normalized jet air unit and then you have a relationship here, you can see, through this line here, if we plot the noise in decibels versus the velocity of the jet, because then we can express it on this sort of a scale as a straight-line function. That is, the higher the velocity gets, the more noise—and it is about that simple.

So, then, we want to avoid going up to this point here [indicating] when we design an engine, and hence we want to build and use a bypass engine which goes down to this mark here—and you do that, but then it starts to get down to the point of diminishing returns, as you can see here [indicating].

But then, somehow or other, when the jet gets to be of such low intensity, you find that other things then dominate and they make noise and you hear them. And we put a line across here and call it "machinery noise"—and that can be any one of a number of factors. It can be screaming or whining from the compressor. It can be air rushing past the individual vanes of the compressor—any one of a number of things. But if we can make arrangements to make it operate in that area there [indicating], then that is about the quietest we can make it, and so we can develop engines that are as close to that area there [indicating] as we can—and the fact is that we are bypassing. And our turbofans that are now in service aren't very far up in this curve, and we can't do very much this way—but we can start to do something.

The second thing to do is to build airplanes which are so configurated that they gain altitude very rapidly from the start of takeoff. This means using airplanes with lots and lots of thrust to them. Now, up until recently I think the tendency has been to put as many pounds of weight behind an engine as could possibly be done; but I would say that tendency may be reversed in the industry, and we will see engines, much larger engines in a given size airplane in the future, partly for noise control and partly from simple economics of the airlines' operations.

Of course, there will always be a few airplanes that will run long distances, a very few airplanes that will run very long distances, and these airplanes must be loaded up much higher than the short-haul and they will make more noise in order to gain speed, and that is a somewhat more difficult problem; but again it is subject to the same sort of a long-range attack.

And so we have prospects in the future of building jet airplanes and engines specifically designed to minimize these troubles—and I think you will see them around.

Now, there is a problem—the question can immediately be asked: "Why don't you use retrofits?"

Well, some of the carriers have made use of retrofits over the years and actually have even taken out of service some of the engines that have made a lot of noise. Now, noise considerations were large factors in these retrofit programs, but there is another consideration. For a $5 million airplane, that costs you at least $1 million an airplane to reengine it; that is, take all the engines that are in there out, throw them away, put new engines in, get new pipes—put everything that has to go into it in, and then get the darn thing licensed and all of that—it is at least $1 million, and it can go a bit larger than that in some of the more extreme cases. Well, you cannot undertake an investment like that on its own merits for noise alone, not in the critical condition that our industry is in—it won't pay its way.

So, we have to have something else, some other incentive besides simply the reduction of noise in order to be able simply to pay this bill. In the case of the turbofan conversion that I was familiar with

personally, that incentive was there, in that the turbofan engine did offer you the saving of some fuel, made the airplanes a bit faster, and the commercial advantages of those things went a long way to making us physically able to organize this conversion.

And neither we nor any other carrier has the ability to make this conversion until he has looked closely at purely his own economics—how he is placed on routes, what his needs are, what his financial obligations are, the whole lot. So you can't make any generalizations and say it that way; it is a very difficult thing to do unless you are prepared to pay the bill, and someone has to pay the bill—or at least keep the carrier from going broke, because these are very large numbers that I am talking about, in dollars.

There should be some recommendations as to where we go from here. It is quite obvious, I think, that this jet-noise business is a physical phenomenon that you can't do very much about. It is there. And as to put in the sound suppressor—well, the sound suppressors are a pretty weak crutch. They do work, they are effective, but they do tremendously reduce the efficiency of the airplane, and they do not reduce the noise to anything like, anywhere near as much as you would like to reduce it. And they are only effective when you get into this here (indicating on blackboard) on the curve, they are totally useless otherwise, all they do is add weight and drag and reduce the net propulsive thrust.

So our real hope is to get down toward these lower jet velocities, and when we can do that, we get into the engine-noise problem, and when you get into the engine-noise problem you get into an area where people are lacking fundamental information. That is, they don't understand the physics, they do not really understand the physics of why some of these engine noises occur.

There has been a lot for progress on the whine itself, and I think we are on the way to having engines that will lick the whine. But there is still a tremendous amount of machinery noise, and this is an area where an awful lot of work should be done. And this is an area where directed research should pay off a great deal.

Well, I think I have pretty well covered my subject.

The CHAIRMAN. Would it be permissible to ask a question of Mr. Kolk at this time?

Mr. STACK. Of course, Mr. Chairman.

The CHAIRMAN. Mr. Kolk, concerning these turbofans that you described: What is your estimate of the number of turbofans that are in use?

Mr. KOLK. I would say that virtually every airplane that is being delivered today to the airlines is a turbofan rather than a jet. There are very few straight jets any longer in production, and those now that are in production will be very quickly terminated. All of the new airplanes are fan-powered, so that as the population of airplanes expands, it is going to mean a larger and larger proportion of fans.

The CHAIRMAN. What does that mean in terms of the number in use at the present time?

Mr. KOLK. Now?

The CHAIRMAN. Yes.

Mr. KOLK. I would guess, and it is only a wild guess, that perhaps 50 percent of the jet airplanes flying around are fan-powered now, today. But I can undertake to get the number for you if you would like an updated number.

The CHAIRMAN. Is there anyone in the panel that could come forward with just an approximation?

Mr. STACK. Perhaps we can call on, possibly, for an answer to Mr. Tyler or Mr. Sucio, or perhaps call on Woodall & Co.—the people who build the airplanes.

Mr. WOODALL. On the item of the number of turbofans in relation to the straight jet all of the transport airplanes coming out now, are of the fan type. We are no longer producing the straight jet ourselves.

Mr. STACK. Now, Dr. von Gierke, do you want to add to this from the Air Force side of it?

Dr. VON GIERKE. Mr. Chairman, members of the committee, I would like to review some of the——

The CHAIRMAN. Pardon me, Mr. Collier has a question of Mr. Kolk.

Dr. VON GIERKE. Of course, sir.

Mr. COLLIER. Mr. Kolk, could you please provide some comparison in decibels of the noise produced by the turbojet or the fan jet and that produced by the straight jet under the same conditions of altitude, so I may understand the relationship between the amount of reduction of noise between the two types of equipment?

Mr. KOLK. We can give you a large number of numbers for different instances. I will try to give you some typical instances or situations.

The original Boeing 707, powered by a Pratt & Whitney JT–366 jet engine, and the numbers that I am going to quote were derived from averages of the port authority's monitoring of our flights, now, and these numbers are specifically in application to American Airlines planes, not to all airplanes of this type, but I happen to have this data in that form——

Mr. COLLIER. This is the straight jet?

Mr. KOLK. Straight jet, and that is corrected to and from New York to Los Angeles flights, and all the other conditions are the same, that is, the airplane payload and so forth, sir——

Mr. COLLIER. At the risk of pleading ignorance: You say New York to Los Angeles flights. I am speaking of any instance where we have two different types of equipment, the turbofan on the one hand and the straight jet on the other, coming into the airport at a given altitude, under the same conditions. What is the difference in decibels so that we might be able, perhaps, to determine what difference in effect there would be to the people on the ground.

Mr. KOLK. Splendid. This is what I am trying to do. The airplanes are both departing New York to go to Los Angeles. They are the same airplanes because we took this same one airplane and converted into the other type—they are both on the same mission, both have the same payload, so everything else is close together, as close as we can get.

Now, at 2.6 miles from start and takeoff the unconverted airplane made 127 PNDB. The converted made 113 PNDB, a saving of 14 PNDB. At 3.8 miles from start of takeoff, the unconverted airplane made 110 PNDB; and the converted airplane made 104 PNDB, which is a gain of 6.

Now, the further out you go, the lesser the difference, and eventually you get up to the point where you cannot hear either of them from the ground above other background noise. So the advantage is to the airport very close in, this is where the real advantage is. Does that answer your question?

Mr. COLLIER. Yes, sir.

The CHAIRMAN. And now, Dr. von Gierke, you may proceed.

Dr. VON GIERKE. I would like to review some of the experiences the Air Force has had, over the past 15 years, with aircraft noise problems. I plan to comment principally on my personal technical-scientific evaluation of the main accomplishments in this area, our technical approach and the technical recommendations we have supplied as the basis for Air Force operational decisions. Additionally, I will discuss, briefly, the general applicability of these methods to the overall aircraft noise problem.

I do not want to repeat at this point, unless specifically requested, the history of the Air Force research program on all aspects of noise control which was initiated after World War II when it became obvious that noise from jet aircraft operations would become a problem of increasing magnitude. This program, its organization, funding, cooperation with other DOD and Government agencies, and its results were presented in detail for the Air Force by Dr. H. O. Parrack, in 1960, to the Committee on Science and Astronautics, and, are, therefore, a matter of record.

In summary, I can say that we attacked the aircraft noise problem from the start as a broad systems problem, as outlined by Mr. Hubbard, where a new bit of information becomes meaningful only as part of the overall system. This system starts with the noise-generating mechanism of the propulsion unit and ends with the manifold and complex reactions of people to the noise. Aided by the cooperative efforts of universities, industry, and the NACA, both directly and through effective coordination provided by the Armed Forces-National Research Council Committee on Hearing and Bio-Acoustics (CHABA), our program yielded as early as the midfifties a substantial body of information:

(1) The basic mechanisms by which jet-type propulsion devices generate noise were determined and the capability to predict noise of future propulsion systems was developed.

(2) The various principles basic to successful ground runup noise suppressors, test cells, baffles, screens, and so forth, were evolved, and prototypes were developed and evaluated.

(3) The potential and limitations of in-flight noise suppressors were established and demonstrated by NACA and industry.

(4) Sound propagation and attenuation through the air, to include the variations imposed by meteorological factors, were investigated as constituting an important noise-control parameter.

(5) The effects of jet-type noise on man, particularly on his hearing and communicating abilities, were evaluated by a broad laboratory and field research program. Noise exposure criteria were established.

(6) The reactions of communities to aircraft noise were studied, and attempts were made to find a predictive scheme to relate community response to noise exposure.

(7) The physical phenomenon of the sonic boom was studied, its physiological ineffectiveness under normal operational conditions established, and preliminary criteria for window and plaster damage estimated.

This large body of information made it possible to provide well-substantiated scientific-technical guidance for a number of operational decisions. The most important were:

(1) Procedures for estimating noise exposure and resulting community reaction from airbase operations were published as an Air Force report early in 1957 (WADC TN 57–10, ASTIA Document 110705, later incorporated into ATC Manual 86–1, 1958). These procedures have been used since by Air Force bases for the evaluation of both present and future noise problems. Experience has proved them to be useful and reasonably reliable predictive tools.

(2) Regulations were issued to modify flight patterns, takeoff paths and pretakeoff procedures so as to expose the minimum number of people to the lowest noise levels commensurate with mission accomplishment (AFR 55–34). Location and time of day of engine maintenance runups were regulated so as to insure minimal community disturbance.

(3) Criteria for the prevention of hearing loss from noise exposure were developed and incorporated in appropriate medical regulations to protect ground maintenance and other noise-exposed personnel (AF Reg. 160–3). It was clearly established that even under today's busiest takeoff path noise from flight operations cannot cause permanent hearing impairment.

(4) Desirable noise levels for various work spaces, living quarters and recreational activities were issued for use in the planning of base layouts and sound attenuation requirements of buildings on airbases (WADC TN 57–248, ASTIA Document No. AD 130839).

(5) Since it was clearly established that community response depends, to a considerable extent, on the motivation of the community toward the flight activity, and that familiarity with the operation and its mission tends to dispel fear and adverse reactions, factual information on noise and the sonic boom, together with the efforts and means being advanced to curb them were disseminated to Air Force personnel and the public through various mass media. Particular emphasis was put on a public relations program at the individual base level. An example of this effort is Air Force Pamphlet 32–2–1, "Noise Guide for Base Commanders." A large number of technical papers and handbook articles were published in this time period by us and our contractors to educate the technical community in this specialized field.

(6) Restriction of supersonic flight to altitudes above 30,000 feet and to special test areas was implemented in 1954 through AF Register 55–34 to reduce complaints and avoid damage arising from the sonic boom.

On the whole, the decisions based on these documents have yielded positive and useful results. I hasten to admit that the technical information on which these decisions were based was often far from complete and that we indeed made occasional errors in judgment. But the point I want to emphasize is that these decisions certainly proved to be better than no decision at all. In each case, we were headed in the right direction. Reactions to these practices have been

generally positive, although the obvious military, technical, and economic limitations have prevented the ideal implementation of many of our findings.

Since the period during which the above-cited reports and regulations were issued, we have sought steadily to improve and revise our procedures, relying on scientific data from many other organizations as well as our own studies. Considerable research in all relevant areas is continuing.

The emphasis of our own Air Force research program has shifted somewhat since 1958 to include the potential noise problems of the future; the noise of rockets, missiles, and of a supersonic transport aircraft. Here again we found it advisable to put our scientific knowledge to practical work as early as possible. In 1957, we compiled a report containing tentative guidelines on "Noise From Missile Static Firings and Launch Sites and the Resultant Community Response" (WADC TR 57–547, ASTIA Document No. AD 131025). We issued this before having had any practical experience with this problem, to serve as a guide for the site selection and design of the first operational U.S. missile base. And again I think it was important to extrapolate beyond our experience at this early date, because an educated guess used as a preliminary guide is preferable to dependence on arbitrary decisions alone. In this area, too, our thinking has changed on the basis of 5 years of additional research and experience with larger rockets. However, we think that planning on the basis of our experience up to 1957 alone could insure satisfactory avoidance of major missile or rocket noise problems of the future.

The problem of noise associated with commercial air transportation differs in several important aspects from the military problem: First, the motivation of the communities around airbases toward the defense mission of Air Force operations generates tolerance toward the noise from such operations. Second, people living near airbases are apt to be closely connected with the base both economically and ideologically. None of these points can be counted on to modify the response of the average airport neighbor. Third, though often noisier when they take place, military operations seldom achieve the density, either day or night, of that reached at a busy commercial airport. Minutes or hours often intervene between noisy takeoffs. These three factors definitely favor military over civilian aircraft noise.

One additional factor works both for and against the military operation. Commercial jet operators have accepted such appreciable performance and consequent economic penalties as are imposed by in-flight suppressors and less than maximum load takeoffs under adverse wind conditions. Such a detriment could not be accepted for the defense mission aircraft, and since this argument was obvious to the public, too, no one expected the Air Force aircraft to sacrifice their protective power so as to make noise reduction possible.

Keeping these differences in mind, all of the research results, and many of the operating experiences of the Air Force can be applied, and most have been applied, to help alleviate the civilian airport noise problem. We have cooperated to the fullest extent with the FAA, NASA, the aircraft industry, and airport operators within the United States and abroad. At the present time, a joint DOD–FAA effort is underway to update our procedure of 1957 for estimating community

reaction to aircraft noise and to adapt it to civilian as well as military operations. This document, when completed and coordinated by all agencies concerned, will replace FAA's Aircraft Noise Abatement Panning Series No. 3 of 1960. We hope that the revised procedure will provide a uniform guide for the evaluation of all ground and flight airport noise problems in the United States and will serve in the planning of and in the zoning around both civilian and military airfields.

Similar efforts are underway internationally, although still in the very beginning stages. The airport noise problem is probably more severe in some of the densely populated countries of Europe than it is here; at least, a higher proportion of the citizenry is directly affected. The International Organization for Standardization, Committee on Acoustics, of which the American Standards Association is a member, recently established two working committees. One has the responsibility to develop standards for the physical measurement of noise from aircraft; the second is to develop standard methods for relating the physical aircraft noise measurements to the psychological responses of the individual and of groups. The American Standards Association has started on similar projects.

These national and international efforts, to establish uniform procedures, evaluation scales for noise exposure, and annoyance and possibly even admissible limits, will not solve the present airport noise problems. It is impossible to "quiet" present-day jet engines or to change our aviation facilities overnight. The decisions which brought about present-day situations were made many years in the past. I recall in particular one European metropolitan airport, representatives of which visited us for advice before introducing commercial jet operations. Everything we knew at that time indicated that such operations would bring about extremely high neighborhood noise levels. Today, relocation of residents in the airport area or removal of the airport are being considered, a clearly predictable and predicted situation.

Research will not solve all our problems and will give no solution agreeable to all interests. But it can tell us what can be done and how we can do it. Today we must make the decisions for the future. I freely admit that our knowledge is still limited, even that we are still far from having a perfect noise rating or evaluation scheme. I want to emphasize, however, that our knowledge is adequate to avoid gross mistakes in the planning of future aviation facilities. The solution will be expensive and can certainly not satisfy all interests. But these facts of life should not influence us to delay decisions until we have all the answers, which will never occur.

The report of the President's Airport Commission, the so-called Doolittle committee (The Airport and Its Neighbors) became available in 1952; it recommended protective zones and zoning in areas beyond the runway extensions. Although these criteria were designed primarily for safety reasons, noise was also one factor considered. There are very few airports today where this recommendation has been followed; but implementing it could have prevented some of the most serious problems. By 1957 more detailed guidance with respect to required noise zoning or buffer zones was available. Nevertheless, communities have continued to grow into areas lying at the ends of runways and directly under the takeoff paths.

In my opinion adequate zoning based on uniform procedures is the first and most important step that must be taken. And, as I mentioned before, the gaps in our knowledge are not so great that intelligent zoning steps cannot be taken now. All other possible approaches to control the noise problem in the future are being pursued, so far as I can see: (1) The aircraft industry is working industriously to develop "quieter" engines and has made commendable progress with the introduction of the turbofan engine. You have heard from Mr. Kolk about this and you will hear some more about it this afternoon. (2) Basic physiological and psychoacoustic research for improving our noise criteria is continuing in many organizations and will lead to improved knowledge from which to update our tentative or preliminary procedures. (3) New air transport systems are being analyzed early in their development cycle with regard to their possible noise problems (for example, the supersonic transport) or their potential benefit to the community noise problem (for example, vertical takeoff procedures). But nothing in the foreseeable future offers the slightest hope that a day will come when extensive zoning will not remain a prime requirement for adequate community noise control.

Mr. STACK. Thank you. I think he brings up a point touched on by Mr. Kolk on this question of people moving near to airports just like they did near the railroad station in other and earlier times—but, now, lest we build this problem up to some kind of a bear that will devour us, we must recognize that very significant steps have been made.

I have just received a note from Mr. Wiley of the New York Port Authority relative to the figure that was asked for, Mr. Chairman: That at the New York International Airport as of July 1, 1962, about 30 percent of turbopowered aircraft excluding the turboprops were operating with turbofans, and I would guess that number has probably increased considerably since then and is continuing to increase.

Now, this item alone here, this item alone in the last 12 months has made a very significant contribution to noise reduction in that area. As Mr. Kolk quoted the figures for Mr. Collier, at a point some 3½ miles from start of takeoff, you are down 6 decibels, which is a very significant reduction.

I think another point that was made, and it will be touched on some this afternoon, is that the jet noise—that significant reductions have been made in jet noise, so that we are now faced with the problem of the machine noise, and in this respect it is a little bit like the old one we had with the propeller-and-piston engines, at one time when they were very noisy we got to do something about reducing the exhaust noise and then all of a sudden we had the propeller noise—that is, when you took out one, you still had the other, and we are encountering a great deal of the same kind of thing here, I am afraid.

I think we can expect some progress on it, but I would like to ask Mr. Kolk to comment on the remarks of Dr. von Gierke. It is my own feeling that remedies that are available to the military perhaps are not entirely available to the commercial operator. Would you like to

Well, yes, I think that is absolutely true, there is a differing. You can't go down and tell somebody down at
ou better take the noise out because if you don't the

(7) The physical phenomenon of the sonic boom was studied, its physiological ineffectiveness under normal operational conditions established, and preliminary criteria for window and plaster damage estimated.

This large body of information made it possible to provide well-substantiated scientific-technical guidance for a number of operational decisions. The most important were:

(1) Procedures for estimating noise exposure and resulting community reaction from airbase operations were published as an Air Force report early in 1957 (WADC TN 57–10, ASTIA Document 110705, later incorporated into ATC Manual 86–1, 1958). These procedures have been used since by Air Force bases for the evaluation of both present and future noise problems. Experience has proved them to be useful and reasonably reliable predictive tools.

(2) Regulations were issued to modify flight patterns, takeoff paths and pretakeoff procedures so as to expose the minimum number of people to the lowest noise levels commensurate with mission accomplishment (AFR 55–34). Location and time of day of engine maintenance runups were regulated so as to insure minimal community disturbance.

(3) Criteria for the prevention of hearing loss from noise exposure were developed and incorporated in appropriate medical regulations to protect ground maintenance and other noise-exposed personnel (AF Reg. 160–3). It was clearly established that even under today's busiest takeoff path noise from flight operations cannot cause permanent hearing impairment.

(4) Desirable noise levels for various work spaces, living quarters and recreational activities were issued for use in the planning of base layouts and sound attenuation requirements of buildings on airbases (WADC TN 57–248, ASTIA Document No. AD 130839).

(5) Since it was clearly established that community response depends, to a considerable extent, on the motivation of the community toward the flight activity, and that familiarity with the operation and its mission tends to dispel fear and adverse reactions, factual information on noise and the sonic boom, together with the efforts and means being advanced to curb them were disseminated to Air Force personnel and the public through various mass media. Particular emphasis was put on a public relations program at the individual base level. An example of this effort is Air Force Pamphlet 32–2–1, "Noise Guide for Base Commanders." A large number of technical papers and handbook articles were published in this time period by us and our contractors to educate the technical community in this specialized field.

(6) Restriction of supersonic flight to altitudes above 30,000 feet and to special test areas was implemented in 1954 through AF Register 55–34 to reduce complaints and avoid damage arising from the sonic boom.

On the whole, the decisions based on these documents have yielded positive and useful results. I hasten to admit that the technical information on which these decisions were based was often far from complete and that we indeed made occasional errors in judgment. But the point I want to emphasize is that these decisions certainly proved to be better than no decision at all. In each case, we were headed in the right direction. Reactions to these practices have been

generally positive, although the obvious military, technical, and economic limitations have prevented the ideal implementation of many of our findings.

Since the period during which the above-cited reports and regulations were issued, we have sought steadily to improve and revise our procedures, relying on scientific data from many other organizations as well as our own studies. Considerable research in all relevant areas is continuing.

The emphasis of our own Air Force research program has shifted somewhat since 1958 to include the potential noise problems of the future; the noise of rockets, missiles, and of a supersonic transport aircraft. Here again we found it advisable to put our scientific knowledge to practical work as early as possible. In 1957, we compiled a report containing tentative guidelines on "Noise From Missile Static Firings and Launch Sites and the Resultant Community Response" (WADC TR 57–547, ASTIA Document No. AD 131025). We issued this before having had any practical experience with this problem, to serve as a guide for the site selection and design of the first operational U.S. missile base. And again I think it was important to extrapolate beyond our experience at this early date, because an educated guess used as a preliminary guide is preferable to dependence on arbitrary decisions alone. In this area, too, our thinking has changed on the basis of 5 years of additional research and experience with larger rockets. However, we think that planning on the basis of our experience up to 1957 alone could insure satisfactory avoidance of major missile or rocket noise problems of the future.

The problem of noise associated with commercial air transportation differs in several important aspects from the military problem: First, the motivation of the communities around airbases toward the defense mission of Air Force operations generates tolerance toward the noise from such operations. Second, people living near airbases are apt to be closely connected with the base both economically and ideologically. None of these points can be counted on to modify the response of the average airport neighbor. Third, though often noisier when they take place, military operations seldom achieve the density, either day or night, of that reached at a busy commercial airport. Minutes or hours often intervene between noisy takeoffs. These three factors definitely favor military over civilian aircraft noise.

One additional factor works both for and against the military operation. Commercial jet operators have accepted such appreciable performance and consequent economic penalties as are imposed by in-flight suppressors and less than maximum load takeoffs under adverse wind conditions. Such a detriment could not be accepted for the defense mission aircraft, and since this argument was obvious to the public, too, no one expected the Air Force aircraft to sacrifice their protective power so as to make noise reduction possible.

Keeping these differences in mind, all of the research results, and many of the operating experiences of the Air Force can be applied, and most have been applied, to help alleviate the civilian airport noise problem. We have cooperated to the fullest extent with the FAA, NASA, the aircraft industry, and airport operators within the United States and abroad. At the present time, a joint DOD–FAA effort is underway to update our procedure of 1957 for estimating community

reaction to aircraft noise and to adapt it to civilian as well as military operations. This document, when completed and coordinated by all agencies concerned, will replace FAA's Aircraft Noise Abatement Panning Series No. 3 of 1960. We hope that the revised procedure will provide a uniform guide for the evaluation of all ground and flight airport noise problems in the United States and will serve in the planning of and in the zoning around both civilian and military airfields.

Similar efforts are underway internationally, although still in the very beginning stages. The airport noise problem is probably more severe in some of the densely populated countries of Europe than it is here; at least, a higher proportion of the citizenry is directly affected. The International Organization for Standardization, Committee on Acoustics, of which the American Standards Association is a member, recently established two working committees. One has the responsibility to develop standards for the physical measurement of noise from aircraft; the second is to develop standard methods for relating the physical aircraft noise measurements to the psychological responses of the individual and of groups. The American Standards Association has started on similar projects.

These national and international efforts, to establish uniform procedures, evaluation scales for noise exposure, and annoyance and possibly even admissible limits, will not solve the present airport noise problems. It is impossible to "quiet" present-day jet engines or to change our aviation facilities overnight. The decisions which brought about present-day situations were made many years in the past. I recall in particular one European metropolitan airport, representatives of which visited us for advice before introducing commercial jet operations. Everything we knew at that time indicated that such operations would bring about extremely high neighborhood noise levels. Today, relocation of residents in the airport area or removal of the airport are being considered, a clearly predictable and predicted situation.

Research will not solve all our problems and will give no solution agreeable to all interests. But it can tell us what can be done and how we can do it. Today we must make the decisions for the future. I freely admit that our knowledge is still limited, even that we are still far from having a perfect noise rating or evaluation scheme. I want to emphasize, however, that our knowledge is adequate to avoid gross mistakes in the planning of future aviation facilities. The solution will be expensive and can certainly not satisfy all interests. But these facts of life should not influence us to delay decisions until we have all the answers, which will never occur.

The report of the President's Airport Commission, the so-called Doolittle committee (The Airport and Its Neighbors) became available in 1952; it recommended protective zones and zoning in areas beyond the runway extensions. Although these criteria were designed primarily for safety reasons, noise was also one factor considered. There are very few airports today where this recommendation has been followed; but implementing it could have prevented some of the most serious problems. By 1957 more detailed guidance with respect to required noise zoning or buffer zones was available. Nevertheless, communities have continued to grow into areas lying at the ends of runways and directly under the takeoff paths.

In my opinion adequate zoning based on uniform procedures is the first and most important step that must be taken. And, as I mentioned before, the gaps in our knowledge are not so great that intelligent zoning steps cannot be taken now. All other possible approaches to control the noise problem in the future are being pursued, so far as I can see: (1) The aircraft industry is working industriously to develop "quieter" engines and has made commendable progress with the introduction of the turbofan engine. You have heard from Mr. Kolk about this and you will hear some more about it this afternoon. (2) Basic physiological and psychoacoustic research for improving our noise criteria is continuing in many organizations and will lead to improved knowledge from which to update our tentative or preliminary procedures. (3) New air transport systems are being analyzed early in their development cycle with regard to their possible noise problems (for example, the supersonic transport) or their potential benefit to the community noise problem (for example, vertical takeoff procedures). But nothing in the foreseeable future offers the slightest hope that a day will come when extensive zoning will not remain a prime requirement for adequate community noise control.

Mr. STACK. Thank you. I think he brings up a point touched on by Mr. Kolk on this question of people moving near to airports just like they did near the railroad station in other and earlier times—but, now, lest we build this problem up to some kind of a bear that will devour us, we must recognize that very significant steps have been made.

I have just received a note from Mr. Wiley of the New York Port Authority relative to the figure that was asked for, Mr. Chairman: That at the New York International Airport as of July 1, 1962, about 30 percent of turbopowered aircraft excluding the turboprops were operating with turbofans, and I would guess that number has probably increased considerably since then and is continuing to increase.

Now, this item alone here, this item alone in the last 12 months has made a very significant contribution to noise reduction in that area. As Mr. Kolk quoted the figures for Mr. Collier, at a point some 3½ miles from start of takeoff, you are down 6 decibels, which is a very significant reduction.

I think another point that was made, and it will be touched on some this afternoon, is that the jet noise—that significant reductions have been made in jet noise, so that we are now faced with the problem of the machine noise, and in this respect it is a little bit like the old one we had with the propeller-and-piston engines, at one time when they were very noisy we got to do something about reducing the exhaust noise and then all of a sudden we had the propeller noise—that is, when you took out one, you still had the other, and we are encountering a great deal of the same kind of thing here, I am afraid.

I think we can expect some progress on it, but I would like to ask Mr. Kolk to comment on the remarks of Dr. von Gierke. It is my own feeling that remedies that are available to the military perhaps are not entirely available to the commercial operator. Would you like to comment?

Mr. KOLK. Well, yes, I think that is absolutely true, there is a different kind of thinking. You can't go down and tell somebody down at Rosedale that "You better take the noise out because if you don't the

Russians are going to bomb them"—this is maybe an oversimplification, but that is it.

And it is also pretty obvious that if we did away with the Air Force there, that maybe a lot of these fellows would be out of jobs. We have noticed in the Long Island area when Republic had one of its periodic shutdowns from loss of contracts, there were an awful lot of people out of work from this one employer being out of business. And if you take anything as large and as complex as transportation in New York and throw it out of business there will be very violent reactions—but people don't realize that, they don't realize how important it is in the long run that that is there.

We are always accused of being "private-interested," of making a great deal of money out of this business, of not being able to discipline our people correctly, and not being able to ask the pilot to do things that perhaps the military pilots would do, and all these things are—well, we are at a great disadvantage in that respect—because we are suspect.

And it is also true that when you want to change something on an aircraft, it is a different kind of situation than when the change is to be on an aircraft that hasn't been built yet, you then can do it for almost nothing. A part of our problem is that once an aircraft gets built and it turns out to have some undesirable characteristics, it is the Devil's own job getting organized to change this thing, and this has been a great problem throughout the years.

The military also have the great advantage of a chain of command. If the chap that runs the airbase wants to do something he writes an order and has reasonable expectation that somebody will do it and do it the way the order says to do it.

If, say, you want to do away with the circling approach to runway 22 at Idlewild, where somebody may want to take a long circle and turn at an altitude of 1,500 feet in the interceptor glide, you are faced with a three-dimensional pattern of the airways in the New York area, and it may take you a year to sort them all out, to move something to here, and something out to there and to make the airplane to come in to where you want to have it come in at—and quite often the total impracticability of the situation—so many people involved, including foreign carriers, and the like, it is just not that simple. We try.

Mr. STACK. Thank you. Now, I wonder if you would comment from your experience, Dr. Veneklasen.

Dr. VENEKLASEN. Mr. Chairman, gentlemen, I think the chairman, Mr. Harris, an hour or so ago made a statement which could well be the theme for what I have to say, when our chairman said to Mr. Kolk, "You should have come down to here about 7 years ago." What I have to say in regard to this subject—I would like, first of all, to stress for the technological community the very fact that was mentioned so clearly yesterday, that there has been a great deal of conscientious effort on the part of the technological community in the direction of noise control for aircraft operation. It is purely a matter of misinformation on the part of the public to suppose these efforts have not been made—and this has to be made very clear to the public.

The reason for limited effort brings up a problem that the technical community always has, that one of our most difficult problems is to alert management and governmental bodies, to the fact of an impend-

ing difficulty so as to get action started to correct it, and this was very definitely the case with the aircraft noise picture. Perhaps I should refer to one statement Mr. Kolk made, talking about the history of aircraft noise, that it has been very much like to history of the entire transportation industry, that is, there has been a gradual and steady increase in transportation noise. Mr. Kolk rightly pointed out certain intervals in this trend when there have been marked reductions, but these have been brief reductions in an overall trend that has been going on. Now, the question is whether this trend can be stopped, whether there is any way to put a ceiling on this noise problem.

Much has certainly been done and the industry has certainly spent a great deal to do what has been done in spite of its late start. However, I would like to think what could have been the picture at the time of the introduction of jet aircraft if the technical community had been gotten into the picture 7 years earlier, 7 years sooner.

If we look at what has transpired in the meantime we get a pretty good picture, because the fan engines have been developed which have great potentials for improvement. And I would like to stress one aspect of the improvement in the engine-noise picture, and that is that the technological community as well as the manufacturers still tend to think of an airframe here [indicating] and an engine over here [indicating], looking at them as separate things to be brought together into an aircraft, the engine being something to be added to the aircraft, the engine still being considered as an appendage to an airframe, which is put in to make it go.

As long as this approach is taken there are certain to be very definite limits on what can be accomplished in noise control. But the minute the aircraft and the engine are considered as a single entity and the two can be properly integrated from the beginning of the design, then much more is possible by way of noise reduction. I speak for our group now because our activities have been out on the fringe of this whole picture, to view it and to find out what the future can do for us in the event noise control design is considered from the beginning, and we can say without elaborating for a moment that much greater steps can be taken by proper integration of the airframe and engine.

Now, the continual climb of transportation and aircraft noise is probably due to a large degree to the fact that there have been neither governmental limitations nor enlightened city zoning restrictions to control this noise threat. As a result we have certain airports around which very little can be done, and around many of these airports the public will be required for a time at least to exercise great tolerance for noise at least for the present generation of jet aircraft in order to permit safe operation.

However, this interim situation should not deter consideration and adoption of effective criteria for noise in future aircraft in order to assure the livability of the community, and it should not deter us from establishing guidelines at least for civic zoning.

The reason we feel it is essential that the Federal Government take steps in this direction is that the political pressures on local groups are so great as to prevent constructive action, oftentimes. It is necessary this whole problem be unified by a group which can furnish a basis on which local groups can assure action.

I want to stress again the time element because, as pointed out, this noise threat was pointed out by the technological community and we had occassion several times to point out very strongly to the aircraft industry, to zoning commissions, to airport commissions, that a threat existed in the future and that they should give very close attention to it in their planning. And these warnings were completely unheeded in most cases, and it became very difficult to deal with when it was finally realized.

We feel it is essential that guidelines be drawn up for zoning and to establish a noise limit and we feel that for this reason, that it will assure the proper effort will be applied when such a limit is the basis for new aircraft design, and it also is the basis for zoning, and it also gives the basis for the operation of the aircraft, and all three of these factors are essential to the eventual solution of this problem. We feel that without a limitation being placed among the goals that there will not be the proper application of effort.

Let me go for a moment to ratings of subjective response schemes—public reaction to noise. This matter of grading to a single number is a very difficult one and is probably one in which it will be difficult to find agreement upon within the technological community. The establishment of psychoacoustic ratings in our opinion requires further development and probably cannot be universal in application, because for one thing public tolerance varies greatly for different noise sources—the urgency of their operation, the imagined controllability—and it also depends greatly on the hazards that people associate with a noise. Therefore, we feel that psychoacoustic ratings are difficult to develop and are not reliably established in laboratory tests where the subject is taken out of context, it is a problem for correlation of noise exposures so as to have the best guide for establishing criteria—but even then, time must be given for tolerance as a reaction to new exposure wears off.

The functional interference of noise with essential operations such as communication, conversations inside homes, the use of telephones in homes—these operational factors are also reliable guides for establishing criteria in spite of the fact that the subject is difficult and agreement is difficult to establish. I do feel sure, though, that a guidelines group to this committee could come to an agreement on criteria to be used as an interim measure which should be kept subject to review as further information develops.

In summary, I say, briefly, again, we believe that noise limitation is possible for aircraft operation if conscientiously pursued in early design; and that interim measures as to noise regulation should be established in the way of conscientious design; and that there should be enlightened zoning around airports. I thank you.

Mr. STACK. Mr. Chairman, have you picked any time at which you will want to take a break for lunch; or shall we continue?

The CHAIRMAN. I think now would be a very good time to suspend.

Mr. STACK. Good. And when do we come back? Forty-five minutes?

The CHAIRMAN. We will meet again at 2 o'clock.

(Whereupon, at 12:25 p.m., the committee recessed until 2 p.m. of the same day.)

AFTERNOON SESSION

The CHAIRMAN. The subcommittees will come to order.

Mr. Stack, I think we had reached a point that made it appropriate and convenient to recess for the lunch hour. We will now take up a different source of information that I understand you want to present. You may proceed.

Mr. STACK. Yes, sir. In connection with Dr. Veneklasen's presentation there is one point in there with which I disagree, but as moderator I guess I shouldn't get in the argument.

I know somebody else who disagrees with it so I think we better set that straight. How about you airframe guys here? I think you know the one I am thinking about.

Mr. MILLER. Mr. Chairman, on behalf of the aircraft technicians and the engine technicians I would like to contradict the implications of one of the remarks that Dr. Veneklasen made regarding the thinking of the engine as an appendage to the airplane. Airplane-engine combination is as much a marriage as the meaning of the word really implies, and in analogy, if men and women spent as much time in choosing their respective mates and in correcting their personal habits to make a better working combination as do the engine and aircraft people, including these two pieces of equipment together, there would be no need for divorce courts.

Perhaps Paul was referring to the original combination of the 707 and DC–8 with the JT–3 engine, which was a military engine, first used in the jets. This again, referring back to the marriage analogy, would be similar to a marriage in which the decision as to what level the hi-fi set should be played had not been determined prior to the actual marriage, but as we all know this is a very common problem that hits us all and we all know the solution that normally exists.

The hi-fi is turned down. And in this particular case the respective selections of engines and the growth of engines following the JT–3 into the J–75, and now the fan engine, which is a version of the JT–3, have gone a long way toward correcting this particular problem and it is this type of solution that is constantly going on between the engine and the aircraft people.

Mr. STACK. Thank you, Matt.

Mr. KOLK. John.

Mr. STACK. Yes.

Mr. KOLK. I would like the floor a minute to disagree on one other point. I gained the impression that Paul stated that we had all of the tools that were required to control the noise of the jet airplanes, technologically speaking, before the jet airplanes were produced and before the decisions were made to produce these jet airplanes.

From my own point of view—and I was in the middle of it from an airplane buying end, I don't think practically speaking that was so, that certainly to practicing aeronautical engineers—who were the people who had to deal with this problem—the information wasn't available.

We didn't know how to define decibels. We heard about decibels. We read about them in the handbooks. They taught us about it in schools, but a great deal of this work on the objective measurement of noise was being done and published concurrently with the time

schedules that we had to make our decisions on in the jet airplanes, and specifically the most generally accepted way of measuring this noise, which is called Kryter PNDP, wasn't developed and disseminated to the aeronautic community until after the 707's and the suppressors were built.

So I really do not believe that it is fair to say that we knew all about this when we went into it. We went charging into something and we found a whole lot of things out the hard way, and we would do it over again if we had our 20–20 hindsight in operation, but unfortunately that is water over the dam.

The point is that now that you understand the situation you can do something about it if you had it to do over again, but it was not wide knowledge certainly that we would get into the kind of ruckus that we got into. We didn't intend to get into it.

Mr. STACK. Would you like to say something, Paul?

Dr. VENEKLASEN. Thank you, Mr. Chairman. Yes. This could go on, but I would like to say, first of all, that I believe this is a side issue to the major points we would like to make. However, in defense, may I say I did not say that at the time the jet was introduced we had all the answers required to do something about it, but I did say that if the technological family had had a 7-year earlier start, more could have been done about it by the time the jet was introduced.

I think I must be very specific on this point. And I did also say that the recognition of the likelihood of a large noise problem existed at a much earlier period than anything was done about it and—Matt and I were cooperating on this sort of thing at the time—and I think Matt will agree with me on that point, so the point that I really wanted to make was that the recognition existed and something could have been done about it if the powers that be had been properly alerted.

As we stand right now I think this same point has to be made, because we still do not have what we need to be sure that we continue to do something about it. This is the major point that I think should be made.

We need a continuing established regulation of some sort to be sure that the effort for noise control will continue. Now, as far as evaluation is concerned, Mr. Kolk, I think Karl will bear me out that PNDB is a derivation, shall we say, from the method of evaluating noise on the basis of loudness, and the whole loudness evaluation of noise as a technique was available.

It has been refined very much and still is under process of refinement, but the method and methods of evaluating noise to a useful single number was available. Is that reasonable to say, Karl?

Mr. KRYTER. There were methods, yes, at that time.

Mr. KOLK. I would like to point out, in this particular context, that the 707 was ordered in 1955. It was really ginned up early, frozen early, in 1955.

Steven's monumental paper appeared early in 1956.

Mr. STACK. Karl.

Mr. KRYTER. There were other methods, though, available before Steven's method for loudness, but it is true that this method of evaluating noise was one that was very much in controversy during the period that I think the jet came into being, but there were some psychological principles existing at that time.

I think I would like to set the record straight on perhaps a minor point. Dr. Veneklasen mentioned that the psychological rating schemes are difficult to get agreement on because of individual differences between people, the fact that there is fear involved in some cases and not in others, economic factors, and so forth. I wanted to make the point earlier today that the psychological rating scheme, the PNDB or loudness, does not include these factors; that is, they are deliberately left out of the psychological rating scheme, and we want to make this point very clear. When the PNDB values for two sounds are the same, these sounds will be judged equal, other things such as fear, familiarity, and so forth, being equal. This means that the effects upon the subjective acceptability or noisiness of these sounds due to these other psychological factors must be added to or subtracted from the PNDB numbers. This is an important point that must be made.

Mr. STACK. I would like to get on to the areas where a lot of work has been done so we might discuss what more could be done in that area and I would like to first hit the engine area.

How about you starting, Mr. Tyler, from Pratt & Whitney.

Mr. TYLER. I have a statement that I would like to pass out to the committee.

The CHAIRMAN. The clerk will pass them around.

Mr. TYLER. While these are being passed out I would like to talk about the diagrams that are on the board here.

What I want to talk about is this pink line which was drawn. I forgot now who drew it. I guess it was Frank Kolk.

This has to do with future engine development. Where do we go from here? This morning I think a rather optimistic note was struck by saying that we now have fan engines in production, the new airplanes coming off the line all have fan engines, and the thought seemed to be implied that from now on these engines would be as quiet as the present fan engines. I would like to go back in history a little bit to talk about engine development in general, engines for automobiles, tractors, piston engines in aircraft, and the jet engines which we have been developing during the last few years.

A basic concept in connection with engine development is a unit which is called, for piston engines, break mean effective pressure, and along the cycle of engine development this break mean effective pressure goes up year by year.

From the 1920's until the 1950's this number doubled and tripled. The meaning of this increase in the BMEP is that it becomes possible to obtain higher power out of the same size powerplant. In fact in some cases the powerplant may even become lighter, but there is a trend of general increase in power. In the development of jet engines this same factor exists. We have a unit which we call exhaust pressure ratio. In the early jet engines, turbojets, we started out with a rather modest exhaust pressure ratio on the order of 1.2, 3, and 4. As these engines were further refined this exhaust pressure ratio got up above 2 and was on the order of 2.3, and 2.4 for the first jet engine transport.

Now, this number is still going up for jet engines as used in the military. We have since then introduced a new engine cycle which is called the turbofan. The first turbofan engines started off with a

relatively modest exhaust pressure ratio and a relatively modest bypass ratio. Bypass ratio means the ratio of fan air to the amount of air which goes through the jet cycle.

As time goes on there is a curve of prediction of exhaust pressure ratio for future fan engines and unless something happens to break this normal progress these engines will continue to increase in thrust, both from the standpoint of higher exhaust pressure ratios, which means higher exhaust velocity, which means higher noise, and will also increase in bypass ratio, which in turn means more thrust for a given size engine.

If somehow or other the engine manufacturers, airplane manufacturers, and the airline operators can readily decide they would forgo these improvements, which in turn mean more economical operation, more dollars of profit for the company, then perhaps we could freeze things at a situation where the noise will get no worse.

The engine manufacturer builds engines to suit his customer. If the customer wants a less efficient engine that we could build and will pay more for it than the improved engine, obviously this is what we will build, but the general scheme of things is that he is continually pushing for more power for a given size and weight. I would like to point out that the future is not all a bed of roses and if things take their normal course, there will be factors which will tend to increase the noise levels from new engines.

At the present time at Pratt & Whitney there are two new engines that are not in production yet. They are beyond the drawing board stage and are under development. We have measured noise levels on these two engines. They are both of turbofan cycle.

One of them has a little less noise than the engine used in the present turbofan transports, and the other one has a higher noise. The engine with the higher noise is going into a cargo airplane for the military, and this engine from the standpoint of carrving a bigger load is more efficient than it would be if it had a lower exhaust velocity and lower noise level.

Just to amplify what Mr. Miller said a minute ago, I would like to indicate some of the work which is done in developing engines prior to the point of putting them in airplanes.

I don't know that there was this implication, but I would like to dispel it if there is, the implication being that a jet engine is designed by an engine manufacturer to run on his test stand and that then the airplane manufacturers come around and look at it and decide, "Well, this is a good one. We will buy this."

Actually before any hardware is built the engine design is studied in great detail with regard to the mission that it must fulfill. This mission envisages a flight regime in which there is a ground roll, an initial climb, and in the recent operation of jet transports you may come to a point of power cutback and at this point you may go on at a very slight rate of climb or perhaps you have slightly steeper rates of climb or perhaps you can continue to climb right on out from that point.

This engine is developed from the standpoint of fitting a given sized airplane, being used for a given length of flight, which may vary from a few hundred miles to several thousand miles, and in the design study the engine plus all of its accessories, plus the fuel which is

required for this complete mission, becomes a weight factor and the engine which is the lightest for the complete mission is obviously the best engine from a weight standpoint for the airplane which must carry out this mission.

This particular engine in its design stage will be studied from the standpoint of its use in several airplanes and there may be several different kinds of missions, so that many factors have to be studied, and not the least of these during the last few years has been the problem of meeting noise requirements which have been established, particularly at the Idlewild Airport in New York.

This is particularly important if the airline operator must take off terion of 112 PNDB at a point approximately 3 miles from the beginning of takeoff roll becomes a major design factor.

This is particularly important if the airline operator must take off payload in order to meet this requirement. I would like to point out that in the study of engine cycles to meet this particular requirement there are many ways of doing this.

Perhaps one of the most effective ways of meeting this noise level requirement at a given distance would be the use of an afterburner. Many people may feel that an afterburner being used on takeoff would just not be the wrong thing to do. However, an afterburner can mean maybe 10 or 20 decibels reduction at a particular location, and the way in which it works is this: the noise level at this point over the residential area is determined by the noise which the airplane makes after it gets to some point in the air above and near this point on the ground.

If the airplane can accelerate more rapidly during its ground roll so that it takes off earlier, and then if it can climb steeper, it may be two or three times as high by the time it gets to this nearest neighbor's house, and then if the afterburner is turned off just before it reaches this point, then the noise on the ground will be lower because the airplane is higher and the airplane is in a position to continue its climb making less noise on the ground as it goes.

There is much more I could say with regard to the details of selecting engine cycles, but I think I would save time if we just turned to this written material.

The material covered in the introduction here has already been covered by other speakers, this concept of noise source, path, and receiver, and the various factors which are involved in effecting the noise on the ground, engine noise characteristics, engine thrust characteristics, airplane flight characteristics, flight regimes involving the power cutback, locaton of the residential area, and consideration of the manner in which the noise interferes with normal activity.

Turning to the next section, "Engine Exhaust Noise Characteristics"—Takeoff. The exhaust noise characteristics of a jet engine are a function of the exhaust velocity and nozzle area. Relatively large noise reductions have been achieved by changing from the turbojet to the turbofan engine. The turbofan engine takes energy from the jet exhaust stream and by means of a fan section energizes an additional stream of air. This engine cycle facilitates design configurations in which the jet exhaust velocity is greatly reduced and the fan airstream velocity is lower than the jet stream. The designs of some current fan engines have resulted in significant reductions in

exhaust noise, with an equal or greater thrust than their turbojet predecessors.

The noise suppressors used on turbojet engines show a decreasing amount of noise suppression with decreasing exhaust velocity. The exhaust velocity in the jet stream of current turbofan engines is so low that no additional noise suppression is possible by the use of suppressors based upon the principles used for turbojet noise suppressions. This statement is made on the basis of 10 years of intensive research by the best scientists and engineers available in this field of activity.

This was discussed this morning and I think it needs to be reemphasized, that in the area in which we are working now it is not possible to put on a suppressor or, as many lay people use the term, muffler, to reduce the exhaust noise.

Starting now with a turbofan engine, to make further reductions in noise, it will be obvious that we must keep in mind that we must maintain engine thrust as the noise is reduced. Otherwise we must use a larger engine or open the throttle more to get the needed thrust back. In other words, we must obtain the minimum noise level per unit of thrust. Going a step further, we will find that we need minimum noise level for a given unit of net thrust with the engine installed in an airplane and operating at the desired altitude and airspeed. Then, going still deeper into the problem, we find that the efficiency of the engine is important too. If the engine design is compromised in such a way as to make it less efficient for a given flight, then more fuel must be carried and this heavier airplane will be at a lower altitude as it passes over the residential area, thus offsetting the lower noise level from the engine. Needless to say, these factors are all currently being given careful scrutiny.

At this point I would like to comment on a factor which was discussed yesterday and again this morning. The question was asked how much, if any, noise reduction was achieved by the use of noise suppressors in the turbojet transports.

We made a study some years ago of some of the current noise suppressors at that time and we plotted dollars per hour cost of operating the airplane, or say Delta dollars per hour—that is the increase in cost involved in the use of a suppressor or of some other device—against the change in noise level, which I will indicate by Delta decibels and on this chart were plotted several different configurations.

The cost of operating the noise suppressors used on the JT–3 and JT–4 engines plotted vertically turned out to be roughly $50 per hour. The amount of noise suppression on the ground as the airplane took off from a given airport on a given mission was plotted horizontally. The length of the flight is an extremely important factor because if this is a long flight, then the amount of fuel carried to make up for the losses involved in the use of this suppressor would be a relatively large amount. For example, on a transocean flight roughly 1,000 pounds of fuel may be required to make up for the loss and/or the increased drag caused by the suppressor.

Now, taking into account this extra thousand pounds of fuel, the extra weight of the noise suppressor, the reduction in thrust which the engine has as a result of having the suppressor added, the airplane is at a lower altitude when it passes over the nearest neighbor's house

which offsets the noise reduction of the suppressor. So for a long flight the noise level on the ground would be higher than it would be for a shorter flight, and you can plot points along this $50 per hour line covering quite a range of airplane operations, and on long flights it turns out that in some cases the noise is actually higher on the ground when a suppressor is used than it would be if the suppressor were not used.

Yesterday when this was discussed the comment was made, "Well, this is just a matter of leaving off some payload," but I can assure you that the airline doesn't look at it from this point of view, and I am sure the neighbor on the ground wouldn't look at it from this point of view. He would rather the airplane didn't have the suppressor, didn't have the extra fuel, and gave him less noise. Also the airline would just as soon leave off the extra fuel and carry the payload instead. Just consider this thing on the basis of a standard airplane with all these things pluses or minuses.

On this chart other points were plotted involving approaches to this problem from the standpoint of using more thrust during the ground roll and initial climb. Some of these configurations involve the use of a larger engine, and here the cost of the engine and the cost of maintaining the engine frankly turned out to be something less than the cost of maintaining and operating the airplane with a suppressor on board.

The present fan engines and those under development at the present time are near optimum for the present state of the art from the standpoint of minimum noise on the ground at the measuring points being used during takeoff. And I think here we should emphasize this point, that this is based on the present state of the art.

We have a schedule of increase in performance of our engines in the years to come based on increased bypass ratios and increased thrust from this source.

Looking into the future we feel that as the state of the art improves some small noise reductions will be achieved using improved engine designs based on present engine cycles but no marked noise reduction is anticipated. The most fruitful area for study is probably the area of augmented thrust during takeoff and initial climb, as will be discussed later.

Approach: The inlet noise of compressor whine is being subjected to intense investigation. This noise is most important to the airport neighbors nearest the end of the runway under the approach path. This noise disappears in the background of the airplane aerodynamic noise at low thrust and is masked by the exhaust noise at high thrust. But most present-day approaches are made at thrust levels where compressor noise is not masked.

This approach noise problem is being given intensive study in research laboratories. Some progress has been made in developing an understanding of the mechanism of compressor noise generation, and the design of engines in service and under development has benefited from this research.

There is a problem also of establishing design goals so as to obtain minimum reaction of airport neighbors to this approach flyover noise. Those interested in limiting flyover noise have concerned themselves with peak noise levels only. However, engine development has taken

into account the fact that the duration of the noise exposure is as important as the peak noise level. Noise quality is also an elusive factor. Improvements in predicting subjective reaction to noise by mathematically weighting various portions of the spectrum are being made as a result of intensive research. However, with variable noise quality and variable noise level during a flyover noise exposure we are not now able to predict subjective reaction with a satisfactory degree of accuracy and it is not likely that we will accomplish this feat in the near future. Jet engine noise development work will therefore continue on the basis of a jury system of rating the noises.

The engine development work in the past few years has been based on the theoretical perceived noise levels, the loudness scale, as well as the decibel scale.

However, in many cases it has been found that, when a jury of listeners judges two noises which may have a given ratio of level in terms of one of these scales, say, perceived noise decibel, as they listen to these noises they decide that the one rated highest was actually the most acceptable. These differences between jury rating and scale rating are never very large. They may be on the order of 2 or 3 decibels in one direction instead of 2 or 3 decibels in the other, but when an engine is being developed to meet a guarantee these 2- or 3-decibel values are extremely important.

They may cost an engine manufacturer a million dollars to make some basic change required to get over the hurdle of meeting this more or less detailed guaranteed value. You can imagine that the engine manufacturer is very unhappy at having to meet a guarantee which he knows does not improve the noise quality.

Engine thrust characteristics: An engine with high thrust for takeoff and initial climb can be used to reduce the neighborhood noise problem. I think perhaps I covered that in my earlier discussion.

Airplane flight characteristics: I think this will be pretty well covered by the airplane manufacturers who will speak after me.

It is pretty well known that the climb capability of an airplane is very dependent on the mission of the airplane. Long-range airplanes are inherently slow climbers and a study of this particular relationship has indicated that the rate of climb of the airplane is roughly inversely proportional to the range for which that airplane was designed.

On flight regime, extensive analysis has been made of the takeoff flight regime of long-range airplanes in an effort to minimize noise at the nearest neighbor's house, which is presumed to be about 3 miles from the beginning of takeoff roll. Where maximum noise levels are established, it is necessary that the throttles be pulled back as the airplane goes over this nearest neighbor's house so as to meet a maximum noise level limit at that point. Presumably, the airplane will still be able to climb with this reduced thrust. The pilot then opens the throttle slowly after he passes the checkpoint, the theory being that as he gains altitude he can use more thrust and maintain the same noise level on the ground. This throttle-opening procedure has not been worked out in as much detail as the throttle cutback. However, it is interesting to note that even if it were worked out so as to maintain constant noise level on the ground under the flight path, the area

exposed to high level noise would be gradually increasing as the airplane gains altitude and the noise levels on the ground at relatively large distances would be increased to the level at the nearest neighbor's house. This procedure brings high level noise to the homes of people who didn't build or buy a house near an airport. It is to be hoped that we will find a better philosophy than this share-the-noise concept. This will be discussed further.

I think this is a very important point. It has been emphasized that we should plan ahead, but the essential point here is that by pulling back the throttle to help the nearest neighbor we are increasing the problem for a neighbor which may live many miles from the airport, and it is not just a small group of neighbors as it is near the airport because, as the airplane gains altitude, as it opens the throttle, the area under the airplane becomes wide and includes a much larger number of houses, so that you can see that as you expand out over the residential area away from the airport this little box that we have gotten ourselves into by giving the nearest neighbor the prime consideration has actually made the problem much worse by exposing thousands, and in the case of New York City, actually millions, of people to noise comparable to the noise which the neighbor has near the airport.

Now, the point which has been made, which I would like to emphasize, is that in planning this thing from the start, if we look at a flight path in which we find that this power cutback is so objectionable, then we find that this added thrust during the ground roll and initial climb would permit an airplane to take off and climb right straight on out. This would be of tremendous value not only to the nearest neighbor, which we have always considered, but would be of tremendous value to the millions of people living miles away from the airport.

The approach flight path is relatively uniform for all airplanes. It depends on the localizer beam, whereas the takeoff flight path depends on airplane design and load. The approach angle for present aircraft should be small, particularly that portion of the approach immediately before touchdown. At present some pilots come down the localizer beam, staying above the beam at the beginning of the approach and intersecting the beam during the final portion of the approach. This procedure, coupled with the use of less thrust and less flap at the beginning of the approach, but increasing thrust and flap toward the end of the approach, has the effect of reducing noise except near the end of the runway.

Here again we have the problem of having the nearest neighbor's house being close to the airport and if we think only in terms of this nearest neighbor we will say to ourselves "there is nothing we can do because the airplane has to be on the glide beam at that point," but if we look at the larger problem we can see that it is possible to come down a steeper approach path or use this velocity that I just mentioned of using higher air speed at the beginning of the approach and using this energy to drive the airplane down the path rather than opening the throttle and using lots of thrust.

At this point I might mention a rather disturbing fact that I learned not too long ago. I think you people have heard about the hush kit for the JT–3 engine. This hush kit was developed for an engine which was considered to be too noisy for use in airline opera-

tions as it was ready to be put into production. The engine manufacturer made a terrific effort to reduce the noise and this effort was made in response to a specific specification which was laid down, and this specification called for reduction of noise at 4,000 pounds of thrust, which was the specified thrust for the approach.

The change was made at tremendous effort and cost, both to the engine manufacturer, the airplane manufacturer, and the airline operator.

Some time after that, studies were made in which noise levels were measured under the approach path of airplanes at Idlewild, and it was found that the pilots were not using the 4,000 pounds thrust which was specified in this original study.

They were using thrusts as high as 6,000 pounds or higher, and, at 6,000 pounds, all of this effort to reduce noise does not pay off in the slightest. At 4,000 pounds thrust there was on the order of 5- to 8-decibel reduction in discrete frequency spikes in the spectrum. These are pure tones that are produced by the compressor.

One of these spikes was reduced by 5 decibel; another 7, another 8, and so on. The noise quality was very much improved with the reduction of these spikes.

However, when the pilot flies the airplane with more thrust, he brings the revolutions per minute up to a point where the noise from the improved engine is no better than the noise of the original engine. So here, dollars in even figures were spent on a project where the pilot can, just by adjusting his throttle a little bit differently than was specified, completely nullify all of this effort.

Then we have a section in the writeup on location of residential areas, and here one might ask, "Why is this in a paper on engine design from a noise standpoint?" But I think I have brought out here the fact that, where this power cutback is required and this becomes a part of the engine design, this is an extremely important factor.

Flight procedures have been established so as to avoid exposing densely populated areas to high level aircraft noise whenever possible. However, we have fallen into a rather serious trap in some cases by adjusting our flight procedures to hold noise levels within specified limits at the nearest neighbor's house.

I think I have covered this in my discussion. If it were possible somehow to move these nearest neighbors out of the areas off the ends of runways, both the takeoff and approach noise situations would be benefited. On approach, the area exposed to high level noise is fairly narrow because the airplane flight path is shallow. However, this strip is quite long with present approach procedures.

I see I am being called on time. Let me just finish with one more paragraph. Long-range appraisal. We should get away from this "house that Jack built" procedure for accommodating modern aircraft near our large cities. The airports must be near the cities if they are to be effective in providing fast transportation. However, we should do the best job possible of keeping the noise close to the airport and not spread it over the whole city. Also, we should establish noise levels for residential areas on the basis of interference with the normal activity of communication, rather than saying we will make it no more annoying than propeller airplanes.

It is suggested that a speech-masking criterion be used to rate aircraft noise and that the limits be set so that there is no masking at an established speech level. This is a much more definite limit than annoyance which is widely variable with individuals.

And this point, the lack of accuracy of present noise rating scales, has been discussed already. The speech masking concept has not been presented here, but let me say that this is merely a procedure where words are read at a constant voice level. A tape is played of an airplane flyover and, as the noise level rises, you determine where the listener cannot hear the words being read and the accuracy of this kind of measurement is within a decibel or so, strange as it may seem, whereas the other systems have an accuracy of plus or minus several decibels.

Possible solutions: It is certain that many steps should be taken to provide relief for the airport neighbor from aircraft noise. This action should consider the large urban area located around the airports adjacent to our large cities. To accomplish this the following steps are listed in the order of their probable effectiveness. Studies are now underway to provide more factual information on this subject.

1. Move the "nearest neighbor's house" farther away by some means such as urban renewal in which the area is converted to industrial use.
2. Change flight procedures to get airplanes up and down at steeper angles within this enlarged area.
3. Improve pilot handling of airplanes, to provide more uniform relief from high noise levels on the ground, particularly during approach.
4. Improve engine design to minimize noise and provide thrust characteristics compatible with the requirements for rapid climb-out and descent.
5. Improve airplane design to facilitate rapid climb-out and descent.

Thank you.

(The prepared statement of Mr. Tyler follows:)

Airport Neighborhood Jet Noise. What Can Be Done About It?

(Submitted by John M. Tyler)

INTRODUCTION

The jet noise problem has many facets and involves many factors. The problem involves basically a noise source, a noise path, and a receiver. The noise source must be considered from the standpoint of noise level, noise quality, and duration. The noise path consists of a variable length path through air and, if the listener is in a building, the path is through walls and windows of the building. The receiver responds to the noise level, noise quality, and duration as heard at his location on the basis of his previous exposure to this noise, his present activity and various individual physical and psychological factors.

The problem from the point of view of the aircraft industry is to obtain efficient, safe operation of aircraft into and out of airports with a minimum of response due to noise from listeners in the airport neighborhood. To achieve this goal, a careful study of the following interrelated factors is required.

1. Engine noise characteristics; inlet noise and exhaust noise, at thrusts from maximum down to flight idle.
2. Engine thrust characteristics. Engines with high thrust at low airplane speed give the airplane greater acceleration and better rate of climb.
3. Airplane flight characteristics; i.e. thrust loading, wing loading, and lift and drag characteristics of the wing. These are important during both takeoff and landing.

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4. Flight regimes established for the operation of the airplane; i.e., point of power cutback on takeoff, whether turns are made to avoid residential areas, thrust level used on approach, whether glide path is on the high or low side of the localizer beam.

5. Location of residential areas with respect to the airport and whether there are other noncritical areas, such as water or farmland nearby which may be flown over instead.

6. Consideration of the manner in which noise interferes with the normal activity of persons living and working near airports and an appraisal of the steps needed to prevent this interference.

1. ENGINE NOISE CHARACTERISTICS

Takeoff

The exhaust noise characteristics of a jet engine are a function of the exhaust velocity and nozzle area. Relatively large noise reductions have been achieved by changing from the turbojet to the turbofan engine. The turbofan engine takes energy from the jet exhaust stream and by means of a fan section energizes an additional stream of air. This engine cycle facilitates design configurations in which the jet exhaust velocity is greatly reduced and the fan airstream velocity is lower than the jetstream. The designs of some current fan engines have resulted in significant reductions in exhaust noise, with an equal or greater thrust than their turbojet predecessors.

The noise suppressors used on turbojet engines show a decreasing amount of noise suppression with decreasing exhaust velocity. The exhaust velocity in the jetstream of current turbofan engines is so low that no additional noise suppression is possible by the use of suppressors based upon the principles used for turbojet noise suppressions. This statement is made on the basis of 10 years of intensive research by the best scientists and engineers available in this field of activity.

Starting now with a turbofan engine, to make further reductions in noise, it will be obvious that we must keep in mind that we must maintain engine thrust as the noise is reduced. Otherwise we must use a larger engine or open the throttle more to get the needed thrust back. In other words, we must obtain the minimum noise level per unit of thrust. Going a step further, we will find that we need minimum noise level for a given unit of net thrust with the engine installed in an airplane and operating at the desired altitude and airspeed. Then, going still deeper into the problem, we find that the efficiency of the engine is important too. If the engine design is compromised in such a way as to make it less efficient for a given flight, then more fuel must be carried and this heavier airplane will be at a lower altitude as it passes over the residential area, thus offsetting the lower noise level from the engine. Needless to say, these factors are all currently being given careful scrutiny.

The present fan engines and those under development at the present time are near optimum for the present state of the art from the standpoint of minimum noise on the ground at the measuring points being used during takeoff.

Looking into the future we feel that as the state of the art improves some small noise reductions will be achieved using improved engine designs based on present engine cycles but no marked noise reduction is anticipated. The most fruitful area for study is probably the area of augmented thrust during takeoff and initial climb, as will be discussed later.

Approach

The inlet noise or compressor whine is being subjected to intense investigation. This noise is most important to the airport neighbors nearest the end of the runway under the approach path. This noise disappears in the background of airplane aerodynamic noise at low thrust and is masked by the exhaust noise at high thrust. But most present-day approaches are made at thrust levels where compressor noise is not masked.

This approach noise problem is being given intensive study in research laboratories. Some progress has been made in developing an understanding of the mechanism of compressor noise generation, and the design of engines in service and under development has benefited from this research.

There is also a problem of establishing design goals so as to obtain minimum reaction of airport neighbors to this approach flyover noise. Those interested in limiting flyover noise have concerned themselves with peak noise levels only. However, engine development has taken into account the fact that the duration

of the noise exposure is as important as the peak noise level. Noise quality is also an elusive factor. Improvements in predicting subjective reaction to noise by mathematically weighting various portions of the spectrum are being made as a result of intensive research. However, with variable noise quality and variable noise level during a flyover noise exposure we are not now able to predict subjective reactions with a satisfactory degree of accuracy and it is not likely that we will accomplish this feat in the near future. Jet engine noise development work will therefore continue on the basis of a jury system of rating the noises.

2. ENGINE THRUST CHARACTERISTICS

An engine with high thrust for takoff and initial climb can be used to reduce the neighborhood noise problem. Two factors concerning climbout are important to the residential area. The first concerns the altitude to which the airplane is able to climb by the time it is over the area, and second, the speed to which it is able to accelerate.

The altitude is important because noise on the ground decreases with the altitude of the airplane. Also the spectrum shape changes, i.e., the high frequencies decrease with distance even faster than the low frequencies. This is highly beneficial because the high frequencies sound louder than the low frequencies.

The airplane speed is important to the larger community beyond the airport. At present, transport airplanes cut back on thrust at speeds below the speed of best rate of climb and therefore climb more slowly over populated areas, additional thrust would facilitate increased acceleration and a higher angle of climb. Also, the higher the airplane speed, the shorter the noise exposure on the ground under the flight path.

It is assumed that higher noise levels on the airport itself, to facilitate higher thrust during the ground roll and initial climb, are acceptable. The airport terminal buildings can be designed to attenuate these noises.

The use of higher thrust for takeoff to reduce noise must of course be scrutinized carefully to take into account the increased powerplant and structural weight and extra fuel involved in obtaining the extra thrust and to compensate for any loss in the cruise efficiency of the powerplant. Thus the net effect of augmented takeoff thrust is to reduce noise only if it can be properly integrated into the overall engine and airplane design.

3. AIRPLANE FLIGHT CHARACTERISTICS

Takeoff

The importance of the climb capability of the airplane has been discussed. The airplane with a high rate of climb will be at higher altitude when it starts to fly over residential areas and it will be able to throttle back and still climb reasonably well. Two- or three-engine airplanes usually have better climb capabilities than four-engine airplanes. Each must be able to climb after takeoff with one engine out. The two-engine airplane must be able to climb on half its full power; the three-engine airplane on two-thirds of full power, and the four-engine on three-fourths of full power. Long-range airplanes climb more slowly than short range airplanes and have less margin for power cutback after they clear the airport.

The aerodynamics of transport airplanes has been given intensive study for many years. The high-lift capability of modern transports has been an important factor in bringing the transport industry to its present level of efficiency. It is well known that the rate of climb of an airplane is a function of its gross weight and that it is possible to remove payload from an airplane to permit it to climb to a higher altitude before it reaches residential areas. Unfortunately, the flights which produce the highest noise levels on the ground, the long-range flights, are ones in which the percentage of payload to gross weight is small and in which a large percentage of the payload must be removed to make any noticeable difference in the noise level on the ground. These are airplanes which could benefit by augmented thrust during takeoff and climb. Catapults and rockets and similar systems have been considered for years, but the equipment doesn't appear safe or practical to the airlines.

Vertical takeoff and landing or short takeoff and landing aircraft are being studied intensively at the present time. However, it does not seem likely that these aircraft will enter the transport field for many years and may not affect long-range aircraft designs for many more.

Landing

Just as a steep climb out is beneficial in the takeoff noise problem, so a steep descent is beneficial in the approach-noise problem. The low-angle approaches used at present are recommended on the basis of safety. The airplane rotates about its horizontal axis slowly and if it approaches in an attitude close to its touchdown attitude, it doesn't have to rotate very much just before touchdown. Also, it is desirable to have high thrust available for maneuver during approach. Because of the time required to accelerate from idle a relatively high thrust setting is used during approach. Thus the approach-flight path is low, i.e., close to the residence under the flight path and the engine thrust is high enough to produce compressor noise at a high level. Much study has been given to various approach procedures considering the use of steeper approach angles and the use of lower engine thrust. The question of safety is always raised. If airplane and engine characteristics were improved (and they are being improved) it is still argued that the present procedures are safer than using a steeper approach angle and/or lower thrust.

It is of interest to note that there is a wide variation in aproach noise made by airplanes of the same model flown by different pilots. There may therefore be room for improvement in approach-flight procedures by persuading the pilots whose airplanes make high noise levels to learn from those whose airplanes make less noise.

4. FLIGHT REGIME

Extensive analysis has been made of the takeoff flight regime of long-range airplanes in an effort to minimize noise at the "nearest neighbor's house," which is presumed to be about 3 miles from the beginning of takeoff roll. Where maximum noise levels are established it is necessary that the throttles be pulled back as the airplane goes over this "nearest neighbor's house" so as to meet a maximum noise-level limit at that point. Presumably the airplane will still be able to climb with this reduced thrust. The pilot then opens the throttle slowly after he passes the checkpoint, the theory being that as he gains altitude he can use more thrust and maintain the same noise level on the ground. This throttle opening procedure has not been worked out in as much detail as the throttle cutback. However, it is interesting to note that even if it were worked out so as to maintain constant noise leved on the ground under the flight path, the area exposed to high-level noise would be gradually increasing as the airplane gains altitude and the noise levels on the ground at relatively large distances would be increased to the level at the nearest neighbor's house. This procedure brings high-level noise to the homes of people who didn't build or buy a house near an airport. It is to be hoped that we will find a better philosophy than this share-the-noise concept. This will be discussed further.

The approach-flight path is relatively uniform for all airplanes. It depends on the localizer beam, whereas the takeoff flight path depends on airplane design and load. The approach angle for present aircraft should be small, particularly that portion of the approach immediately before touchdown. At present some pilots come down the localizer beam, staying above the beam at the beginning of the approach and intersecting the beam during the final portion of the approach. This procedure, coupled with the use of less thrust and less flap at the beginning of the approach, but increasing thrust and flap toward the end of the approach, has the effect of reducing noise except near the end of the runway.

5. LOCATION OF RESIDENTIAL AREAS

Flight procedures have been established so as to avoid exposing densely populated areas to high-level aircraft noise whenever possible. However, we have fallen into a rather serious trap in some cases by adjusting our flight procedures to hold noise levels within specified limits at the "nearest neighbor's house." Thus, we find pilots pulling back on the throttle as they approach this "nearest neighbor's house" even though the airplane is at low altitude and below the best rate of climb or best angle of climb speed. If the pilot had held full throttle to a higher altitude and a higher airspeed, the nearest neighbor's house and his immediate area would have been exposed to a higher noise level, but the many square miles beyond would have experienced a reduction in noise level. The problem therefore is how to take care of the relatively few near neighbors in order to benefit the comparatively many neighbors a little farther away.

If it were somehow possible to move these nearest neighbors out of the areas off the ends of runways, both the takeoff and approach-noise situations would

be benefited. On approach, the area exposed to high-level noise is fairly narrow because the airplane flight path is shallow. However, this strip is quite long with present approach procedures.

An alternative to moving residents from high-noise-level areas is to provide sufficient attenuation in the walls and windows of their houses to keep the noise out. For houses not yet built this could be handled by a building code. For houses in existence, an extensive sound-treating job would be required.

6. LONG-RANGE APPRAISAL

We should get away from this house-that-Jack-built procedure for accommodating modern aircraft near our large cities. The airports must be near the cities if they are to be effective in providing fast transportation. However, we should do the best job possible of keeping the noise close to the airport and not spread it over the whole city. Also, we should establish noise levels for residential areas on the basis of interference with the normal activity of communication, rather than saying we will make it no more annoying than propeller airplanes.

It is suggested that a speech-making criterion be used to rate aircraft noise and that the limits be set so that there is no masking at an established speech level. This is a much more definite limit than annoyance which is widely variable with individuals.

POSSIBLE SOLUTIONS

It is certain that many steps should be taken to provide relief for the airport neighbor from aircraft noise. This action should consider the large urban area located around the airports adjacent to our large cities. To accomplish this the following steps are listed in the order of their probable effectiveness. Studies are now under way to provide more factual information on this subject.

1. Move the "nearest neighbor's house" farther away by some means such as urban renewal in which the area is converted to industrial use.
2. Change flight procedures to get airplanes up and down at steeper angles within this enlarged area.
3. Improve pilot handling of airplanes to provide more uniform relief from high-noise levels on the ground, particularly during approach.
4. Improve engine design to minimize noise and provide thrust characteristics compatible with the requirements for rapid climb-out and descent.
5. Improve airplane design to facilitate rapid climb-out and descent.

Mr. STACK. I think perhaps we will go on with hearing about some other work that has been done on engines and I think in the interest of covering this whole thing we have discussed the various methods of measurements and the fact that we can make a sound and relate it to something so I would say for a while now until we come near the summary let's forget how we measure these things and this sort of thing, since it has been fully treated, because our time is running on.

We have to get the aircraft people in. Dan, do you want to go ahead?

Gentlemen, this is Dr. Suciu, manager of research of the General Electric Co.'s large engine plant in Cincinnati.

Dr. SUCIU. In the interest of clarity and brevity I will follow the statement I have prepared.

Aircraft engines employing the gas turbine cycle for purpose of generating jet propulsive power have primarily two sources of noise. One of these is the high-velocity exhaust stream which is discharged through the nozzle and the other is the compressor which pumps the required air through the engine. The following is a brief summary of the activities in these areas and of the General Electric Co.'s participation in them:

A. EXHAUST NOISE

Turbulence associated with jet exhaust as a source of noise was first recognized as a technical problem, and possibly as a future practical problem, during the late forties. First theoretical work of significance was done by Professor Lighthill of the University of Manchester in 1950.

Mr. Lighthill was the one who suggested that the jet noise should be proportional to the eighth power of velocity. First experimental work to verify Lighthill's theory on jet noise in this country was carried out concurrently by Hubbard of NACA, von Gierke of WADC, and Lee of the Navy Department, between 1950 and 1952. Most of these early works merely confirmed the fact that high velocity exhaust jet produces high intensity noise, and demonstrated the basic methods of predicting noise level as a function of jet velocity, and nozzle area. Between 1952 and 1958, support for basic research on the mechanism of sound generation due to jets was derived mainly from the military services and NACA. Research work during this period had certainly improved the basic understanding of the problem; however, progress in terms of understanding the mechanism of noise suppression, and the development of systematic design guides of jet noise suppression was extremely slow.

Airframe manufacturers recognized the necessity for a jet noise suppressor in about 1954 and began a concentrated effort toward developing a practical design. The approach followed was to develop a separate component rather than to integrate the suppressor into the design of the engine nozzle.

At that time scaling parameters were still being developed and were not too well known. A lot of the work had to be done on full scale hardware and this proved to be quite expensive. The results of this effort led to the multiple tube and lobe type designs giving a 10 to 15 decibel physical noise reduction which corresponds to a 5 PNDB noise reduction. This was achieved, however, at the expense of a substantial loss in engine thrust. Beginning in about 1956, NASA started research and development activities on noise suppressors using actual engine component technology. This work by the Lewis Laboratory included wind tunnel testing to determine their inflight drag characteristics. Unfortunately, this work came to a halt in about 1960.

The General Electric Co., as an engine manufacturer, started its research and development effort on jet noise suppressors in 1956. In late 1958, it completed the development of the ejector type daisy shaped suppressor for the CJ–805–3 engine. The noise reduction capability of this suppressor is about 12 decibel, or 5 PNDB. However, by integrating the suppressor and nozzle design, and by using more advanced propulsion engine technology, the performance loss due to the suppressor was kept to less than 1 percent.

B. COMPRESSOR NOISE

The problem of noise due to compressor whine was first recognized at the time the turbofan engines were first developed, that is, the 1959–60 time period. For the last 3 years, the efforts of both airframe and engine manufacturers have been directed toward achieving a bet-

ter understanding of the basic mechanism of noise generation as well as toward developing a means for its suppression. Thus, it has been found possible to reduce the noise created by the compressor by redesign of the compressor, and to reduce the noise propagated by treating the inlet and exhaust ducts to absorb the sound after its generation. General Electric followed the latter approach for its fan engine (CJ–805–23) and took advantage of the unique geometry of the aft-fan installation to develop an absorptive type suppressor which was good for about 5 PNDB without any loss that could be measured and at a very slight weight gain to the engine.

C. GENERAL ELECTRIC CO. ACTIVITY

I would like to cover now specifically some of the past General Electric activities in the area of noise suppression. Since 1956 we have been engaged in a broad combined analytical and experimental program directed toward achieving a greater understanding of the fundamental mechanisms of sound generation in jet engine components; development of analytical methods for predicting the intensity, frequency distribution, and directional patterns of sound developed by jet engine components; development of instrumentation and techniques for measurement of sound propagated from operating engines; actual measurements of the sound field generated by the complete operating engine and by its individual components; development of devices to suppress the sounds generated by engines; and measurements in the field on these engines and their components with and without sound suppressing devices, while operating in aircraft on the ground, and in flight.

During the course of this work, which is in no way considered to be complete at this moment, it has been necessary to investigate many related phenomena. The following are typical of the programs conducted:

1. Turbulence noise of coaxial jets, that is, the two jets are concentric with each other.
2. Shock noise produced by choked jets, that is, where you have sonic velocity in the nozzle.
3. The noise of interfering jets, that is, where you have jets alongside of each other.
4. The effect of external flow on noise reduction, that is, the influence of secondary flow around the airplane.
5. The localization of the sound sources in jet wakes; in other words, where does the sound start from within the jet itself.
6. The relative effectiveness of various absorbent materials as acoustic dampeners.
7. Influence of compressor rotor-stator configuration on noise characteristics.
8. Study of engine cycle selection influence on noise level and distribution.
9. Miniaturization of aeroacoustic probes for direct measurement of engine component noise patterns.
10. Effectiveness of various jet-mixing schemes as noise suppressors.
11. Effectiveness of water injection for noise suppression.
12. Reduced scale model tests to establish correlations to full-scale performance.

13. Comparison studies to establish correlations between test cell measurements and open field measurement.

To perform this work it is of course necessary to have proper facilities. The General Electric Co. has acquired the following capabilities and has made them available for work in this field of activity:

1. Scale model jet noise test cell within a reverberation room.
2. Thrust stand system to permit simultaneous acoustical and nozzle performance measurements.
3. Double plenum-concentric flow test configuration to simulate turbofan configurations.
4. High temperature blowdown test stand.
5. High temperature continuous jet test stand.
6. Multistage low speed compressor.
7. Transonic wind tunnel.
8. Single-stage transonic compressor.
9. Sound producing, recording, and analyzing equipment.

The knowledge and experience gained from this overall effort has resulted in a number of significant technological advances.

These are advances which are the result of the whole effort throughout the industry and not the General Electric Co. by itself. It is now possible to predict with a high degree of reliability the noise pattern of a jet in terms of intensity, frequency, and directivity for a wide variety of geometries through use of an established computer program. This means considerable savings in time and money when evaluating newly conceived configurations. It is now possible to extrapolate test results on small-scale models to full-scale performance. This makes possible sizable further savings in experimental evaluations of chosen configurations. Instrumentation is now available for making measurements on compressor components in closed tanks which can be used to predict installed engine noise on operating aircraft. This gives knowledge of the nature and severity of the noise problem early in the development cycle when changes can be incorporated at relatively low costs.

From this background have emerged two suppressors for application to existing engines. Both have been mentioned earlier. Namely, the shrouded, daisy-shaped ejector nozzle for the CJ–805–3 engine presently being used on the Convair 880 and the damped acoustical resonator treated nozzle for the CJ–805–23 engine. This engine, without suppressor, is presently used on the Convair 990.

In general the works I have described have been funded in a number of ways, partially by the Air Force, partially by the Navy, and partially by the company itself.

Our present effort is summarized primarily under two contracts. One is with the Navy and it is aimed primarily at basic research looking at the mechanisms of noise suppression.

The Navy has a unique problem in the sense that they have airplanes taking off from ships on which there is a limited amount of space. Therefore, it is possible to go only so far in the direction of separating people away from the noise generated by the aircraft. They are interested in what are the natural limits of noise suppression since they have no alternative.

We are looking at some rather unconventional means for that. The other parts of our present work are being supported by a limited amount of funds on our present supersonic transport contract and it is aimed primarily at the evaluation of the noise characteristics of some of the advanced nozzles.

The supersonic transport engine is an advanced type which requires a converging-diverging nozzle and the performance of this nozzle is much more sensitive to shrouds, or to any hardware that you insert into the gas stream, therefore the losses in this system could be more severe when you try to reduce the noise that is being generated by the jet. In addition we are looking at some interrelationships between the noise the engine makes and the particular thermodynamic cycle that is selected. Along this line the results of our tests, or our analyses in this case, have indicated that the noise level doesn't vary too greatly with the cycle chosen.

As an example, the amount of noise being produced will only vary about 5 decibels. However, the absolute level is about 12 decibels higher than the existing aircraft engines. This indicates that the problem is going to get more severe as the higher performance aircraft, which require higher performing engines, are developed.

What does this mean for the future then?

I think that we can say with some certainty, that the aircraft engine noise is not a problem which promises to disappear with time. In fact, it is clear that the higher performance required by future aircraft will dictate inherently noisier engines. Reasonable extrapolations to the present state of the noise suppression art lead to the expectation that a 10 to 15 PNDB reduction is possible with only nominal losses in performance. Beyond that, appreciable losses in performance will be incurred. Such losses, if imposed on operating airlines, are sure to be economically intolerable. In addition, vertical takeoff and landing aircraft which are now reaching the stage of rapid development will bring new problems and new stimulus for reducing aircraft operating noise levels.

This is inherent, I think, in VTO systems. This is true because in order for a VTO system to be of much value it has to take off and land in fairly densely populated areas. As a result, even though they may have lower exhaust velocities the noise level that reaches the surrounding inhabitants could be as high or higher than present levels.

To meet this increasingly evident need, higher levels of research and development than presently exist will be necessary. Although significant advances have been made and much valuable work has been done over the last 6 to 8 years, we are far from having the sufficiently great body of knowledge necessary to generate the unique and unconventional solutions that are going to be needed for the future.

An analysis of the areas of least knowledge leads to the following suggested programs:

1. Applied research on the relation between compressor aerodynamic and mechanical design parameters and the noise generated.

2. Further studies on integrated nozzle suppressors with emphasis on retractable suppressors.

3. Further work on acoustical treatment of ducts and component parts, including the concept of the choked inlet for the supersonic transport. The choked inlet promises to significantly reduce the

amount of front end noise that comes from the compressors but more work is required to investigate its full potential.

In preliminary tests it has been quite effective.

4. Specific funds for evaluating the relative tradeoffs of engine noise with cycle selection, mission requirements, and aircraft operating procedures early in any advanced program are required, and I think the point that we would like to make here is that this problem of noise by advanced engines is going to be great enough so that if the entire burden of getting the noise level down is placed on the propulsion system alone it will be necessary to pay a performance penalty for it that will make the whole supersonic transport system uneconomical. Thus, you are going to have to take advantage of all the methods and all the means that have been discussed here both today and yesterday, such as the airport location, the operating characteristics of the airplane, how the pilots fly them, and all the rest of the considerations mentioned before you can really achieve the noise levels that are acceptable to the community.

5. A continuing program is also required to develop further design criteria and quantitative relationships between the performance of the components of the engine and the noise reduction.

This is going to be very critical, especially to the compressors. It is a very finely balanced component in order to give the right operating characteristics and it is not possible to go in and start changing parameters such as blade spacing, blade curvature, number of blades, aspect ratio, and so forth, without affecting its performance.

It is already, as I say, a finely balanced system and it will be necessary to find out what kind of performance losses are introduced by superimposing the noise requirement on it.

6. In addition, a continuing program of fundamental work on sound generation and suppression is required.

Overall, I think the message that I have is that a lot of work has been done on noise suppression, a lot of good work, and it is possible to do something about noise. In fact, quite a bit has been done.

When you start talking about 5 to 6 perceived noise decibels, this is in practice, because of the characteristics of the engine, equivalent to about 10, 12, to 15 physical decibels. You will recall that for every 3 decibels there is a factor of 2 reduction in the sound power, so when you talk about 12 decibels, you are talking about 2 to the fourth power or essentially one-sixteenth the original sound power level and that is quite a reduction. It is going to be hard to achieve this in the future on very high performance aircraft without substantial losses or new knowledge.

Thank you.

Mr. HEMPHILL. In talking about the compressors, the use of suppressors, is there any safety factor involved?

Dr. SUCIU. Safety factor?

Mr. HEMPHILL. Yes.

Dr. SUCIU. In terms of what?

Mr. HEMPHILL. Well, if you use a suppressor does that change the safety factor in any way, causing aerodynamic drag or weight or anything like that?

Dr. SUCIU. It depends on the design. In our particular design for the daisy suppressor we could compensate for the losses due to the

mixing by shrouding it with an ejector so that the jet actually pumps bypass air through a shroud. This gives you added thrust that compensates for the loss that is incurred.

So there is some tradeoff between the losses that are incurred due to the noise suppressor and the increase in thrust that is gained by the ejector action. Now this adds weight to the system and it has to be designed in such a way that it is equally reliable in terms of life and it has to be designed so that it is cheap as possible, but you can't add something for nothing and it turns out usually that these things cost you in terms of dollars or in weight.

However, they can be made equally reliable so from the safety standpoint I don't think there is any sacrifice.

Mr. COLLIER. Didn't you say that the maximum loss was reduced to 1-percent pressure loss?

Dr. SUCIU. This was 1 percent in thrust coefficient.

Mr. COLLIER. Does that loss represent a safety factor as far as the operation of the aircraft is concerned?

Dr. SUCIU. No, I don't believe so.

Mr. COLLIER. It does not?

Dr. SUCIU. The operation of the aircraft is not that critical in terms of the safety at the takeoff or the landing. However, its performance loss cost the airlines money because it takes more fuel to propel the aircraft at a given mach number. Then your airplane carries less payload in order to compensate for the greater amount of fuel needed to reach its destination.

Mr. COLLIER. Then we wouldn't encounter a safety problem.

Dr. SUCIU. No. It is a cost factor.

Mr. STACK. I think at this point now we can open this to a real Donnybrook because we get to the point here now where all this stuff that has been said and mentioned and all of the wonderful things that have been done to the engine end up in the airframe guy's lap and sometimes he doesn't agree with all of this.

Then he also gets in a lot of trouble with the fellows like Kolk who don't like anything he gives them because it makes too much noise and isn't good enough, so how about Matha Miller, you start off for the airframe industry on this thing and let's see if we can't pinpoint some of these areas.

Mr. MILLER. I didn't have any particular prepared statement today, Mr. Chairman. I think my words will be more philosophical than they will technical. I think you have gathered from the various presentations of the groups of us that have been working together that even among ourselves on the measurement techniques and the human criteria, and exactly what one device does and what another one does, is not exactly an exact science.

At least eight of us on this panel today have been working together intimately for 14 years, and I think that I could probably say that I could predict in these groups of people what each one would say, and how he would say it, much more accurately than I could predict a great many of the acoustical parameters that we are concerned with.

The reason that I am thinking more philosophically is that I have a new job in another division of the company, not in the aircraft division any more, and I am no longer directly concerned with the acoustical problem. So I can look back in retrospect over all this period

of years and can think more unemotionally about what has happened. I can look at my own mistakes and all of our mistakes from a little different viewpoint.

I think all of us would have done a great many things differently if we could go back and redo it. But philosophically the overall things are much the same as they were 10 years ago, fitting in with the dates that Mr. Suciu gave you, I can recall when the first meeting of the National Air Transport Coordinating Committee was held in New York. I believe it was in 1952. It was attended by Mr. Littlewood of American Airlines, and Captain Rickenbacker of Eastern, Mr. Patterson of United, Mr. Raymond of Douglas, Wellwood Beall of Boeing.

In fact, I think the entire group of men represented there were either presidents or vice presidents in every major aircraft company or airline in the business. They were new to the problem and they were asking for some information and I was one of the two or three elected to bring them up to date with what we knew at that time.

I remember that I fed them what little real technical details we at that time had, but I ended my talk to them telling them that as I could see the picture at that time there were a great many different people involved each of whom had to contribute if we were to effect the total solution to this problem. You can begin with the engine manufacturer, the aircraft manufacturer, the airline, the airport operator, the zoning commissions of the airports, and the regulatory bodies. From that point on the technical people, to my knowledge everyone in this room that represents a technical area, has not had any purse strings closed trying to get the solution to this problem. The thing that has held us up all along is the absence of trained men in acoustics, but most of all ideas; basic, fundamental, scientific ideas from which we could work to make large strides.

The strides we have made have been mostly from a developmental nature by trying the things that our institutions told us would work.

These have brought about the noise suppressors. These have brought about introduction of the fan engine, the operating procedures that the airlines use. All of these things have fit in as we begin to get new and better information.

The public relations people, the news agencies, by and large have come into this picture, too. They, like all of us, have made certain errors in approach to the problem, and in some cases more fear has been instilled when it would have been better to instill less fear in the people, but it has been a pattern.

The engine manufacturer has the responsibility to reduce the noise of the engine as much as he can. The aircraft manufacturer has the responsibility to design his airplane so that its operating characteristics, within safety requirements, will carry that engine to points where it minimizes the noise.

The airline operator has the responsibility to operate his airplane within safety requirements as well as he can to minimize the noise.

The airport managers in the layout of their airports have a part of the problem. The zoning commissions should be helping in the layout of the community and the regulatory bodies are a part of that whole picture. Over this period of time you can see, if you think back, step by step all of these agencies have been moving into the picture and I think this meeting today is evidence of the fact that the regula-

tory bodies are a part of it, and I think that in the future, although I personally will not be as much involved in it as in the past, this group of people working together will develop an optimum solution which can be both humanitarian and economical, which is what we are all interested in.

Mr. STACK. Mr. Woodall, would you like to pick up this problem of how we now take all of these things and put them together in a quieting airplane that doesn't annoy the neighbor?

Mr. WOODALL. Having written most of Matt Miller's speeches it is a little hard to follow him since we basically agree on the approach that he takes, namely, that it is a system problem.

We not only have to select the quiet engines and put them in a good performing airplane. We have to lend our advice to seeing that they are operated in such a manner, safely obviously, to minimize the noise. This has basically been our approach and our goal.

We are continuing to strive to improve the performance of the aircraft the same as the engine manufacturers are striving to reduce the noise in the engines that we buy from them.

I see nothing in the immediate offering that is so startling about the performance of the aircraft that is going to change unless you are talking about vertical-type takeoffs or short takeoffs and landing-type aircraft. With the conventional aircraft each and every aircraft designer is pushing this as hard as the state of the art will allow. This is just inherent in being in competition with anybody to sell good performing airplanes, and without going over any of the details that have already been discussed I think that is about all I have at the moment unless somebody has questions.

Mr. STACK. Mr. Howell, would you like to pick it up at this point.

Mr. HOWELL. Mr. Chairman and members of the committee, I think it has been pretty thoroughly chewed over by now, but I might like to say one or two things about where we are going and some of the developments.

John Tyler spoke of the matter of thrust cutback which we used with the early turbojet engines and suppressors. I want to point out that this is rather ineffective with our present turbofans.

Some operators I understand are not using it at all because we have picked up somewhat on the compressor noise, noise from the front end, on approaches and so cutback doesn't give us the large noise reductions with turbofans. In fact, you can argue that it might be better to continue to use full outthrust on takeoff and get that extra altitude and increase the distance between the airplane and the observer.

I would like to emphasize John Tyler's point also on the possibility of increasing thrust to weight ratio on aircraft as engine developments permit.

It looks odd at first to say that an airplane with a larger powerplant, obviously noiser powerplant, nevertheless can be operated to produce over a given point less noise energy, but this is what happens and as John Tyler pointed out, that your increased altitude here gives you more sound reduction than the added noise you are getting from that particular engine, so this might be a fruitful direction for certain aircraft. Certainly in some of the supersonic transport designs duct burning is being considered.

We believe at Boeing that further research could profitably be accomplished in compressor designs, but I think it has to be accomplished at the engine manufacturer's facilities for the reason that the reduction in nose level must also be measured against the change in engine operating parameters, the change in specific fuel ratios, the losses, changes in the stall characteristics, all these things which are so intimately bound with compressor design. There are only a few places where this thing can be properly evaluated.

There are a number of groups working on this and I believe that further research in this direction would be profitable.

I think the people here yesterday covered the matter of urban renewal and land approaches. I would echo John Tyler's recommendations here. I believe that we need to study this thing and see what we can do about removing the near airport neighbor from the high noise levels.

Engines are getting larger, aircraft are getting larger, and we are just not going to immediately make any big break-through in aircraft noise in my opinion. We are all working hard to improve this situation. Boeing Co. spent around $10 million on sound suppressors. We checked over 600 models and wrung this thing out thoroughly with all the variations of flight ejectors that we could conceive.

We are spending around a half million dollars a year just on noise abatement and acoustic designs. We are taking this thing very seriously, but technically I believe that the rate of progress as we see it today is going to be slow.

Thank you.

Mr. STACK. We seem to have advised you, Mr. Chairman, and your committee, that we have made very great advances and we understand a hell of a lot about the science of it, and we have made a lot of reductions in decibels, then we stick our tongue in the other cheek and say: "Well, there you are still going to be on our backs because we are not going to have it good enough for a long time yet."

Is that a fair summary? Would you like to debate me on this one?

Mr. KOLK. A little bit. I believe that we can do a great deal more in engine and aircraft design than has been accomplished in the past. When I say that I understand full well that if we approach the problem of the specifications and the design of aircraft in the manner in which it has been done in the past that we will tend to come out with the same results. We can't afford to make quiet usual.

I don't believe that that is true. I think our methodology is suspect in a large number of areas and I think we have some things staring us in the face that indicate that that is true. Very noisy airplanes tend to be very underpowered airplanes, or very underthrusted airplanes.

They have small powerplants in relation to their weight and all of these engine and airplane designers will tell you that this is the way to get the most efficiency out of an airplane and they will show you reams and reams of data to back up their statement, but it is also a fact—I believe it is an evident fact—that some of the most successful airplanes that are flying around today are airplanes that have a ridiculously high amount of thrust per pound of weight used in practice.

To get personal for a minute, I work for one particular carrier. We have gone in fairly heavily for airplanes that have a great deal of thrust in them. We purchased Electra airplanes which are tremendously overthrusted and they are quiet and people like to ride in them. We purchased 707 airplanes. They didn't have enough thrust in them. And I call your attention back to the old days of when you were taking off in one of those wet jobs and everybody in the front of the airplane was looking at his watch to see when he was going to get to rotating speed. People don't like to be trundled across the ground for 55 or 60 seconds before they start to fly, so we fixed that. We put bigger powerplants in them and then we bought some more lighter weight airplanes and we standardized on a big powerplant in this lighter weight airplane, and people like to ride in that even more.

We certainly haven't been at any competitive disadvantage in these machines. Our balance sheet doesn't necessarily reflect that these overpowered engines are running us into the ruck in terms of competitive economy with the rest of the airlines, and we are going further down that road in new procurement.

The powerplant pounds of thrust per pound of airplane weight is going up all the time and the noise is going down as a result. This is particularly true of noise. So we can afford larger powerplants. I know we can afford larger powerplants and we may have to devise methodology to prove to the financial people that it is a good thing when we borrow the money for them, but we can do it.

Second, there is the business of the efficiency of the engine. Everything you heard here today says that from a takeoff point of view if you make the specific thrust of the engine, that is, the thrust divided by its airflow, a very low value, the airplane will not make very much noise on the takeoff compared to these high specific thrusts, high jet velocity machines.

This is a fundamental principle and nobody doubts it, but we all sit back and say we can't afford this kind of engine, mostly because nobody has ever figured out how to build an engine like that and its requirements, and Matt Miller is quite right, our problem is that we can't schedule invention. We can't sit here and say, "6 months from now somebody is going to make an invention and all will be well," because inventions don't happen that way, but the drive, the incentive, is there and if we comport ourselves with a reasonable degree of statesmanship we can get to the places that I have been talking about.

Our airplanes today, I believe, for similar missions, that is, say on an airplane that is going from Washington to Chicago if it is a jet, shouldn't make any more noise on takeoff around a community than a propeller driven airplane on the same mission that was in service 5 years ago. In fact I would venture to predict that we eventually will have the machless noise for that mission.

We are going to have to fight for it, though. These achievements must be made in recognition of the fundamental problem. I am not saying that, well, economy dictates otherwise because economy doesn't dictate otherwise and if we don't accept that challenge as an industry we are not pulling our own oar in the national economy.

I except the supersonic transport from my remarks, but I am talking about high subsonic airplanes and I am talking about new air-

planes built from a clean sheet of paper from scratch, knowing what we know today. I don't believe that anybody has told you here that the achievement of lower noise levels is anything except hard work, and they don't like hard work. We have a problem in approach noise. The problem in approach noise is worse than the problem of takeoff noise but I can see that we can do something about approach noise.

There are perfectly straightforward engineering principles that need to be applied to the job in the takeoff situation and the approach noise is an area where we really do need an invention.

We need to know how the engine people can build compressors that don't make any scream. We need to know how to make vortex noise all over the compressor blades and turbine blading remain at a low level and we don't know it today. We might have an inkling here today but we don't know it. This is an area where research will help.

It also is an area where a good bright idea will help. This is a major challenge today, because if you go to work on takeoff noise and in the way you know you have to get to grips with takeoff noise, approach noise is going to get worse unless you do something about the scream. It is there. We have to accept the goal and we have to go about rolling up our sleeves and going to work and I think that the only thing that stops us is we don't have any idea right now and we are lazy.

Mr. STACK. Would some of your engine people like to come in on this?

Dr. SUCIU. The solution to the problem of landing noise is a function of the system and the particular engine design, and I guess I should say of the aircraft that is flying.

In a particular case we think we can do something about the landing noise on our CJ 805–23 engine and the reason is because the geometry of the discharge——

Mr. STACK. You have an exceptional case there.

Dr. SUCIU. Yes.

Mr. STACK. Because you can put this long hood on it as you have on the 990.

Dr. SUCIU. That is exactly right; so there is something in a specific case that can be done and in fact we think right now that we can get as much as a 5 to 10 perceived noise decibel reduction on the existing airplane with a minor modification in terms of cost and weight, but that doesn't mean that this will solve all the problems that exist in the airlines today because every one of them requires a different approach and a different solution.

I am only speaking of the engine that I know something about.

The CHAIRMAN. The point is, is your customer happy with this, or is he going to complain about it?

Mr. KOLK. The customer doesn't have this particular suppressor in the back of his engine and of the people in the employ of my company, who are the only domestic operators of the engine in question, I guess I was the guy that decided not to put the sound suppressor on the back end, and the reason why I didn't put the sound suppressor on the back end was not because the cost was exorbitant and not because it didn't reduce the perceived noise decibel the 6 decibels claimed, but when they organized two airplanes, one without and one with, and made a flyover, my ears told me that I didn't get enough sound suppression

for the dollars that I was going to have to put into the device, and it was that simple.

The sound meters did know about it. There is no question about it. They did know about it, but if you stood under those airplanes and they flew over you didn't hear 6 decibels worth of less annoyance, so it goes on.

This brings up a point, that we are dealing with a very imperfect state of the art. We have all kinds of measuring scales, but to date, the only way that we know of of saying that you are getting something for your dollar in terms of noise reduction is to make one of these comparative tests where you have a large number of subjects that hear it both ways and they decide whether it is louder or quieter, and with a controlled test you can find out about how much louder or quieter it is.

That lack of knowledge as to how to go about interpreting some of these results inhibits this research and it is an important point, but it doesn't say we are not trying.

Mr. MILLER. Have you had an audiogram recently?

Mr. KOLK. Yes, I have one every 6 months.

Mr. MILLER. How is it?

Mr. KOLK. Very good.

Dr. SUCIU. We have to be very careful that we compare two situations that are the same when we make a comparison. In other words, they have to be the same airplane, the same gross weight, and you have to be in the same relative position to the airplane. Also, the engines must be at the same throttle setting.

This is the problem. It has to be done very carefully and systematically to make sure that you actually achieve the noise reduction that you think you have, and I think there is a lot of merit to the comment that this has to be interpreted properly.

Perceived noise is a function of the frequency distribution of the noise that is being put out by the engine, and from what we know about the acoustic dampening technique, we can shape the frequency distribution by some further work. We think it is possible to get the right attenuation in the right octave band so that it produces the overall effect that you would like to produce. This takes time and money, however, and it has to be worth it in the end to the customer.

There has to be an incentive for him to buy it. The incentive for the engine manufacturer, which is the one I am worried about, is that there is some reasonable expectation that at the end of his development someone is going to buy it so he can get his money back out of it. He is doing it because he expects to sell it at a profit.

Mr. STACK. Karl, you had a finger on this.

Mr. KRYTER. I think Mr. Kolk made a very good point, or implied a point, that there is research needed on the rating schemes. We shouldn't assume that only research on the engines is involved. That is where the solution lies, but I think that we can help this research if we improve our knowledge of the rating schemes and how to get valid measures, and certainly a jury rating would take precedent over a calculation scheme.

But we must find why there is disagreement, and I think the pure tone is one factor. That is, these jets have pure tones in them now that were not considered in the development of this perceived noise decibel rating scheme. Steps are being taken to correct this fact and

when this is done I think we will find that there is no longer disagreement between the jury and the calculations.

Mr. STACK. I think, at this point, it might be good if Ken, you can summarize as briefly as possible and in as little time as possible what programs you in the FAA are supporting, to bring about some of this.

Mr. POWER. Be glad to.

Mr. Chairman and gentlemen, the FAA, NASA, and the DOD are cooperating in a program of applied research and study with industry to conduct research on critical technical problems encompassing a wide range of technologies as related to the development of a commercial supersonic transport.

In order to provide a general background for the FAA-sponsored program I would like to briefly review some of the important elements of the supersonic transport research effort that relate directly to two problem areas intrinsic to the operation of future commercial supersonic transports.

One is the airport noise and the other is the shock wave created noise or supersonic boom. We have found out in our discussions both yesterday and today that aircraft engines create a variety of noise problems.

The first one, as Mr. Kolk has said, results from takeoff operations, and this can be identified as turbulent jet noise generated from the shear action between high velocity jet stream and surrounding air, identified by its broad frequency spectrum.

As Karl Kryter said, hitting all the notes on the piano at the same time. There is also a landing problem due to compressor whine. I think Frank just brought that out. This is rotational noise due to the interaction of the stationary vanes and rotating blades of the compressor, identified by the discrete and pure tone frequency components.

I have a short movie of about 2 minutes that shows a TJ–38 engine running at about 50 percent power so that we can identify these discrete or pure tone components. [Showing film.]

This is a sonic block. Note the change in frequency.

That just demonstrates some of these areas which we in the supersonic transport area are looking to. So much for that, gentlemen.

Mr. STACK. Let me interrupt a minute, Ken. I don't know whether the members of the committee noted what was going on there, but there was a center plug in that thing that when it was moved forward, that is, outwards, the front of the engine, made a throat between its shape and the outer sleeve and in this throat a local velocity equal to the speed of sound occurred, so that this higher pitched sound then just didn't come through there. It is called a block, I guess.

Mr. POWER. Sonic block.

Mr. STACK. One of the systems or schemes for attempting to get rid of some of this or to block off this high-pitched stuff that comes on the approach.

The CHAIRMAN. Were we looking at the tail end of the engine?

Mr. STACK. You were looking at the front end. The high-pitched noise you heard was this whine.

Mr. POWER. This is just one area that we are looking into.

The significant thing is I think you noticed a change in the frequency, that it was less annoying to you. The actual physical decibel

might not have gone down much, but at least the discrete or pure tone component was decreased.

At first glance, the increased thrust requirements of the supersonic transport would be expected to create even more severe noise problems than today's subsonic jets. We are talking here of an engine maybe in the 30,000-pound class.

The FAA-sponsored SST research program in the propulsion area includes a system approach to the solution of supersonic transport noise.

Engine studies under contract with industry consider all types of cycles and to how best to satisfy the requirements for both subsonic and supersonic operations and to do it efficiently, economically, and to do it quietly.

The noise problem for supersonic transports is being assessed and researched by considering as interdependent problems the subjective reaction of individuals to noise, the operational characteristics of the aircraft, the noise-generating components of jet exhausts and compressors, and economic and operational penalties which may be incurred by noise control measures.

Engine noise is a design parameter for SST, demanding and receiving a large amount of attention and dollars in the fiscal year 1962 and fiscal year 1963 SST research program.

Considering the present reservoir of knowledge on prediction and supression techniques, certain goals were established for SST research.

Now, Mr. Kryter has stated here on several occasions a standard of about 112 PNDB, 3½ miles from takeoff roll. Taking our present reservoir of knowledge on jet noise control—this is the rear end noise—develop noise-suppression techniques resulting in minimum weight increase, and this should satisfy the requirement of Mr. Kolk, maximum of 2-percent performance loss, and a total noise level of not more than 106 PNDB at a point directly under the flightpath 3 miles from the start of takeoff roll.

On compressor noise control, which is the other half of this problem, compressor design parameters which would provide minimum noise intensity, least objectionable noise frequency, as we saw in this brief film, and spectrum directivity patterns will also be investigated, since this high-frequency noise is highly directive.

Mission and systems analysis is the third area that we are looking to and this is analysis to be conducted to determine how all the variables may be systematically and optimumly combined where necessary to meet various acoustical and performance requirements.

In the SST program for fiscal year 1961 we have three engine companies studying engine cycles—Pratt & Whitney, GE, and Curtiss-Wright—totaling $80,000. Our engine studies for fiscal year 1962 are Pratt & Whitney, $349,906 and engine-cycle studies for GE, $284,087.

On engine-component technology—these are the components of an engine that these three companies, I will say, are investigating—there was $2,150,000 to Pratt & Whitney, $2,108,000 to General Electric, and about $700,000 to Curtiss-Wright.

There are other things that we are doing in the propulsion area which I won't go into. These are fuels and lubricants, and so forth. Another big area is the inlet-exhaust-thrust reverser, this contract is to General Electric and of all the funds that we have here, some $7 mil-

lion, approximately $500,000 of the total effort that has been expended to date has been devoted to achieving the established noise goals for the SST.

We don't say that the noise for the SST should be as it is today. We are trying to make it better than it is today.

Mr. STACK. Ken, may I interrupt you a moment?

One-fourteenth of this has been in the area of trying to get noise down; is that correct?

Mr. POWER. That is right. The outlook is favorable. We think that the technology and the data that we will get out of our supersonic transport engine component will be helpful not only for, of course, reducing the noise level of the supersonic transport, but as this data is developed it will be available under this program for present and future researchers and designers alike. So much for our SST program as far as what we are doing on noise.

In addition to engine noise the supersonic transport is faced with another source of noise, that is, the shock-wave-created supersonic boom. This shock wave disturbance is an old ballistic phenomenon. However, it is a relatively new consideration in design and operation of aircraft. This shock wave created noise will be experienced during most of the flight plan and its intensities will probably be highest during acceleration, and deceleration, and maneuver phases of the flight plan.

I direct your attention to this chart. An airplane flying at supersonic speeds will create shock waves. These shock waves attach themselves to the nose, to the wings, to the tail, other protrusions such as the canopy and so forth of the aircraft, and travel down toward the ground at about the speed of sound and propagate in a forward direction at about the local speed of sound.

This is the near field where the shock waves leave the airplane and they coalesce or they form somewhere down here in the near field and travel on to the ground and present themselves to the observer as two explosivelike sounds.

Sometime only one is observed, but usually there are two. This is the far field and this, of course, up here is the near field. This is the mach angle, and the faster the aircraft goes, the mach angle bends back, just over the speed of sound, say mach 1, then the shock wave would be more in the vertical plane.

There are many variables involved in understanding and being able to predict sonic boom intensities. A few of them are aircraft mach number, aircraft fineness ratio, the aircraft altitude, and certainly altitude is one of the biggest factors in minimizing sonic boom over pressures.

However, there are others: operational procedures, airplane lift characteristics, all the meteorological parameters, such as wind, temperature, and so forth.

The aircraft designers have been working for many years to try to eliminate shock waves. They cannot be eliminated but they certainly can be minimized.

A joint NASA, USAF, and FAA program was implemented last year at Edwards Air Base, Calif., and at various other locations throughout the United States. This program investigated shock wave generation and propagation, design considerations, operational pro-

cedures, community effects, the structural response, and near field effects.

Approximately eight subsonic and supersonic aircraft were involved in this research program with six Federal agencies participating. The cost of this program was about $1 million, with the Air Force putting up the bulk of the share since they furnished the supersonic and the subsonic airplanes which we used.

Sonic boom research has demanded and received in our SST efforts a high priority. A vigorous and accelerated effort will continue until appropriate solutions have been effected.

We are starting our next program sometime in early January at Edwards Air Force Base and this will be the effects of shock waves on light airplanes and helicopters and their psychological effect upon the pilots. That is all, sir.

Mr. STACK. Ken, in the case of this sonic boom thing, it appears that you are getting a running head start on that as compared to how we have treated some of the present noise problems we have had to face. You are probably not going to have this airplane for 5, 6, or 7 years for trial flights, but what you have now do you think you have enough of a running head start to come up with acceptable operating practices?

Mr. POWER. Yes.

Mr. STACK. Maybe I ought to ask the airlines if they think this program is off to a good enough start.

Mr. KOLK. Are you looking at me?

Mr. STACK. Yes. Who else would I look at when I say the airlines?

Mr. KOLK. I think you are doing a good job on the SST. I think you are trying to understand and to head off a problem. I say head off a problem and trying to head off a problem. I also want to say that I am just skeptical enough not to believe that you have it headed off yet.

This is going to be a problem on supersonic transports, and anybody that goes around creating the impression that it isn't going to be a problem is taking an extremely unrealistic viewpoint of it.

But, I certainly think that the more we understand about what we can do and what we can't do with airplanes will produce a degree of acceptance in the country that we can live with.

Mr. STACK. Let me ask you another question, Ken. In relation to what is being done on the supersonic transport, what sort of parallel effort is being made to get done some of the things that the technical people here today offered some hope for?

Mr. POWER. You mean, John, as far as the engine propulsion system goes?

Mr. STACK. Yes, sir, forgetting the supersonic one now, but getting back to the one we are trying to live with.

Mr. POWER. It is too late to get the more or less systems approach right now on present engines.

Mr. STACK. Is somebody backing that?

Mr. POWER. Yes. We have two programs here. One is on jet noise control and the other is on compressors, and this includes sonic inlets, modulated flow, choked and blocked inlets, the same program we discussed in your office one day, maybe not putting a block in the

inlet, but maybe there is some other type of device in the inlet just to block that one discrete frequency or absorb it.

Mr. STACK. Let me put the question now to any of you airframe or engine people who want to answer that one.

Mr. TYLER. Research is going on.

Mr. STACK. Vigorously enough? Adequately enough?

Mr. TYLER. To the extent that it is felt warranted. I would say that that whole——

Mr. STACK. Let me put it this way to you. Is it really the situation that Matt talked about? This work is going on. It is being supported. People are aware of it. Things are being done. If you had more support could you do more, or is this thing supported to the level it can be until somebody springs up with a new bright idea?

Mr. TYLER. I think the big question in the minds of both engine and airplane developers is whether or not the SST is actually going to be here——

Mr. STACK. I wasn't thinking so much about the SST. It is going to be here. It looks now like unless the United States gets off the dime we are going to be buying the British-French thing.

It is going to be here. There is no fooling about that. So I would like to skip that and stick to the noise problem. Let's get our present noise situation. Stick to the present noise situation and how do we get people off our backs, and let the supersonic transport sit for a while.

I know this sounds strange coming from me. It sounds like I have gotten on Kolk's side, but I have not. Go ahead, Dan.

Dr. SUCIU. My own feeling is that right at the moment there is not enough going on to generate, as I mentioned a while ago, the body of knowledge that you need to be creative from. You don't get creative out of a vacuum.

You get creative out of a background of experience, experimentation, and analysis, and this takes time and effort. At the moment we don't have that total background. However, we are working closely with the FAA and we have been working with the Navy and the Air Force, and the signs that I see show a rapidly increasing awareness and a willingness to support activities in this field.

Mr. POWER. I might say that we are going to effectively double our 1962 effort in the areas of noise.

Mr. STACK. Is it the SST you are talking about?

Mr. POWER. Yes.

Mr. STACK. I am trying to drop that. If I get the picture now, the way you feel, Dan, actually there is not enough work going on in fundamental areas to get at what are these sound generators and how is this sound generated and how is the energy converted into these lousy little sound waves?

Dr. SUCIU. In particular, what, in the component itself, is generating the noise and how is it affecting the performance of that component? You have to know the design relationships between noise, suppression, and the performance of the component itself.

We can think of many things to do that would lower the noise, but it would also lower the performance. We have spent many thousands of hours testing compressors and know a lot about the aeromechanical factors which affect compressor behavior. We have, over

the last year or two, been gaining this type of information along with simultaneous noise measurements, however, we still don't have that same background of information on acoustic parameters and their interrelationships with design parameters that we have from an aerodynamic or mechanical standpoint.

Mr. STACK. Harvey, would you like to address yourself to that problem and suggest how we might get some work like that going? If you think I am trying to put you on the spot, really, I am.

Mr. HUBBARD. I think in the past the engine companies have taken the lead in this type of work and it is logical that they should because of the reason just expressed, that this is a very finely tuned machine and if you make some changes you ought to know the penalties you are paying for it. NASA, for instance, is now concerned enough about this to be trying to do some of this fundamental type of work, although it is a very difficult and very costly type of research, I might say, to go the whole mile.

Mr. STACK. In the NASA part of this, this is largely all centered in your group, isn't it?

Mr. HUBBARD. At the present time.

Mr. STACK. And you are having to handle this and you are having to handle a lot of the boundary layer noise problem that comes with the rockets and a lot of the other kinds of noise. What do you have? About half a dozen people?

Mr. HUBBARD. About 15 professionals.

Mr. STACK. You have 15 professionals on the whole basic sound research problem. How about you, Dick?

Dr. COOK. I would say the effort that would contribute more or less directly to this in one way or another is about three professional people.

Mr. STACK. So in the principal Government agencies where we are looking to get aid from here there is a total of about 18 professional people.

Wright Field, how many from you?

Dr. VON GIERKE. If you consider the whole spectrum, engineering as well as biological and psychological research, I think the effort is much bigger.

Mr. STACK. I was talking about this researching on fundamental questions that could lead to some ideas, the thing that Dr. Suciu was talking about. Most of yours is a contract supportive thing with universities, isn't it, not so much an in-house thing?

Dr. VON GIERKE. We certainly have considerable in-house efforts going on, work on the physical problems and on community reaction to noise. All in all, we have approximately 25 people working in this field since we have to include the rocket noise program in this effort.

Mr. STACK. We are not firing any of these things from Idlewild or Dulles. I think the committee is concerned more with the airplane one than with the rocket one.

Matt, you wanted to say something?

Mr. MILLER. I think we are missing the whole essence of what the problem is in this current discussion. The nature of your question intimates that you can legislatively manage progress by the number of people or the number of dollars that you put the work on.

Mr. STACK. No; I think you are quite wrong. I am not trying to do that at all. I am just trying to get some fix on what is the size of the effort we are putting on this thing in this country to try to solve it; that is all.

Mr. MILLER. The current efforts that are going on by practically everybody, and there is a large number of people involved in it totally within the cognizance of the people right here, are of an exploratory nature at the present time looking for facts, facts which assimilated by the brain of a research man, sow the seed of an idea that will make a major step forward.

In this line of thought, I would like to refer back to a comment that Mr. Kolk made a little earlier that I question. He intimated that there might be a little bit of laziness in this picture.

If he inferred this laziness with regard to the managerial types, then it could be a debatable subject, but in protecting the honor of the research people I would like to say that my experience with research people is that there is no more apparently lazy person than a research man without an idea.

It is like trying to judge the laziness of an automobile mechanic if he doesn't have a wrench or a screwdriver, but you give the research man an idea or the mechanic a wrench, and then you can judge the level of laziness, and no one in this research picture on the whole acoustical problem is lazy to my knowledge.

Mr. TYLER. Could I add a statement here?

Mr. STACK. Yes, go ahead, John.

Mr. TYLER. In connection with what Matt Miller said a little earlier, in this area, as far as I know, there is no limit on purse strings and this means there is no limit on manpower which is applied to the project as the understanding of the project develops to the point where you can use manpower.

Mr. MILLER. Might we add no suppression of ideas, John?

Mr. TYLER. That is right. In our organization we have roughly 50 professional people working in the research area and in the development area. This is exclusive of the people who apply these ideas to producing engines.

This effort at this level has been going on since approximately 1953. I might say one other thing. It was also indicated that there is a conflict here between compressor efficiency, for example, and a compressor designed for minimum noise.

In our work we have not found any such conflict. In fact, the designs which operate to give minimum noise in general show improving efficiency over the compressor design which has been cranked out by the compressor people. In fact, the mechanism of noise generation in a compressor involves factors which the compressor design people did not understand and which the acousticians are required to understand in order to handle this mechanism to their advantage.

Mr. KOLK. I would like to get into this.

The CHAIRMAN. I would like to interject the possibility of some questions, Mr. Stack. The members of the committee and I want to save enough time to give us an opportunity to ask questions that might have been raised in our minds before we leave here, and the time is running out.

Mr. STACK. Let's take them right now.

The CHAIRMAN. I don't want to interrupt you Mr. Kolk, so please go ahead with what you had to say.

Mr. KOLK. Apparently I touched on a sore subject and I was misconstrued. I don't mean to say that the acoustical professionals are lazy in terms of performing their mission. What I did mean to say was that having taken the broad picture of where we are today and where we are going, certain trends are fairly obvious and I see some lack of determination to come to grips with those trends.

We need engines of lower jet velocity. To get engines of low jet velocity and high efficiency we need very high bypass ratios, so if you go and look at engines that are available today, all the newer engines have lower, not higher, bypass ratios. This is the sort of end result that all of this is producing and this is what trips off my comment, and we have to look at ourselves as a whole instead of a bunch of little units.

Mr. STACK. And I think your point in making this one is if this trend continues it means more noise perhaps, rather than less.

Mr. KOLK. Inevitably, yes, of course.

The CHAIRMAN. Yesterday we gave Mr. Pucinski and Mr. Halpern an opportunity to express their views for the record. I think today our other colleagues who were with us all day yesterday but did not have that opportunity, would perhaps like to make a brief comment.

Mr. Addabbo, would you like to make any comments?

Mr. ADDABBO. Mr. Chairman, I want to thank you for letting me sit in on these hearings. They are particularly important to myself representing the areas surrounding Idlewild Airport.

There were many questions that were raised yesterday and I am looking forward to tomorrow when the legal end of it will be discussed. Today's discussion was enlightening, but far afield because it is a technical panel discussion and all I can gather from this type of discussion, and I think Mr. Suciu hit it when he says that they are not going to develop it until the airlines are going to buy it, and then we heard that the airlines are a little reluctant to buy it because it costs a million dollars for every transition.

I think it incumbent upon the Congress in working with the men of the panel, and industry, and the operators to work out some medium where we may reach some amicable or middle zone where we often get together and work it out so that the engineers will have the incentive to go out and develop it and the airlines have the incentive to buy it.

The CHAIRMAN. Mr. Rosenthal.

Mr. ROSENTHAL. Mr. Chairman, I want to thank you very much for the opportunity to participate and, as the chairman knows, I represent the district surrounding La Guardia Airport and we are very much interested in this problem.

I take considerable issue with the statements made yesterday by both Mr. Boyd and Mr. Halaby and I hope that the members of the panel here today didn't take any cognizance.

Mr. Boyd described the people who object to these noises as persons suffering from "anxiety psychosis." He didn't even give us credit for being neurotic. He said we are psychotic.

I don't know whether this amateur psychiatrist is suggesting that we were that way before the noise started, but if we ever do get jets into La Guardia, Heaven help what we are going to be then.

The only point I want to seriously make is Mr. Halaby said, "Anxious people are more easily irritated." And he suggested that somebody ought to educate the people around La Guardia and Idlewild to get used to this noise.

Let me tell you gentlemen of the aircraft industry this cannot be accomplished by education. If anyone has to be educated it is these heads of Government, that they ought to assume more responsibility, and at the end of yesterday I was thoroughly frustrated with their position.

I can tell you I have come back a little bit today, Mr. Chairman, in the attitude of the members of the aircraft industry who seem aware of a very difficult problem and apparently are desirous of solving it.

Two or three members of the panel, men from G.E. and from American Airlines and Boeing, have indicated that they suspect that more can be accomplished with research and there has not been much impetus and perhaps it is because commercially it is not feasible to have the impetus this way.

I think if there is anyone at fault it is the Federal Government in not offering you men either more financial help or more psychological impetus for going ahead and doing your work. I would suggest that, if we ever had jets at La Guardia and I hear tell that that may happen, you are going to see something that is going to hit every newspaper in the country, and to keep a sound economy you are going to need airports in New York City and if you come in and don't do something about this problem in a real hurry, I hardly can predict what might happen.

So, I think you gentlemen of the aircraft industry better do something about this and, if the Government is not going to give you the help, you better pull yourself up by your own bootstraps and do something.

Otherwise we are going to have a difficult problem not only in La Guardia, but all over the country because it seems to be getting worse rather than better.

Let me assure you that the people surrounding the airport were reasonable normal decent happy citizens until this problem arose and, if the Government isn't willing to accept the responsibility to do something, why don't you do it before something happens and we are faced with the situation as we were with the drug legislation.

As the chairman well knows, they got a real pleasant bill but only after something very serious happened. Don't let that serious thing happen and if we don't do it, if the Government doesn't do something to help you, do it on your own and you will accomplish a great mission for this country in keeping a healthy aircraft industry.

Thank you very much, Mr. Chairman, for this opportunity.

The CHAIRMAN. We are glad to have you sit in with us during these hearings because of your interest in the resolution that we adopted and the manifestation of your interest for some time on this problem.

Mr. Williams, do you have any questions?

Mr. WILLIAMS. No questions, Mr. Chairman.

The CHAIRMAN. Mr. Younger, any question?

Mr. YOUNGER. No. I just have one comment.

I am inclined to believe that the Supreme Court decision on the financial responsibility of the airports is a great make-work program for acoustical engineers and the lawyers.

The CHAIRMAN. Mr. Williams.

Mr. WILLIAMS. I am very happy to see that work is being done in this area. I am sorry that I was not here this morning to hear all of the testimony, but as I get it from this afternoon's testimony you are working on a solution.

You have not made the breakthrough. You hope eventually to make a breakthrough, and that is about the only hope you can hold out from your standpoint; isn't that right?

Mr. STACK. Yes, sir. I think that summarizes it.

Mr. WILLIAMS. You do hope eventually to make a breakthrough, but it is not in sight yet?

Mr. STACK. Not what you might call a complete new breakthrough. I don't think we see anything like that. We don't have our hand on anything like that. However, as Dr. Suciu pointed out, we keep working on this thing and this is how you generate such.

In the meantime you generate a lot of little detailed solutions that help along the road. Who can predict a breakthrough? I don't know.

The CHAIRMAN. Mr. Collier.

Mr. COLLIER. Thank you, Mr. Chairman. I might add, in line with what Mr. Rosenthal said that 526 recorded interruptions in a single schoolroom in a 90-day period in Park Ridge, adjacent to the O'Hare Field, was not a result, I am sure, of an anxiety psychosis on the part of the teachers at that school.

Now, I have a specific question here just as a layman trying to understand and to get as much of this technical knowledge in the proper perspective as I can. Early today, someone testified that the PNDB with the new turbofan type of engine was reduced from 112 to 106 at a distance of 3 miles. Is that correct?

Mr. KOLK. 3.8 miles, I believe.

Mr. COLLIER. 3.8 miles. Did I further understand that Mr. Suciu mentioned that there was a reduction of 6 PNDB's as a result of a suppressor that developed, that you said that it showed on the machine but you couldn't hear it with your ear?

Would it be logical to assume then that the reduction of 112 to 106 would show on the machine but couldn't be heard by the ear either?

Mr. KOLK. Let me answer that question.

In the case of the numbers that I quoted you on takeoff noise, that noise is predominantly jet noise. Its characteristic is a broadband noise with very little discrete frequency in it.

That is what happens on takeoff when the engines are running at high power. Under those circumstances, I believe that I can say without fear of contradiction from any of the other professionals here that PNDB scheme of rating is a very good scheme of rating; that is, you have an airplane. You have two airplanes going over doing essentially the same thing, making the same general character of noise, and therefore the reduction measured by this scale is a valid measure of people's reaction to it.

In the case of this peculiarity, the noise that was produced by this particular turbofan, the peak noise was a very, very short duration,

and the effect of this particular sound suppressor was to reduce the little pip on the top.

If you plot decibels versus time it winds up with a very little short pip on the top of it. When you eliminated that pip, which was of this extremely short duration—my reaction to it from hearing it was that it must have been in the order of less than a second—it did not appear to reduce the general impression you got of that aircraft flyover anywhere near the amount that was recorded on the meter.

This is a very peculiar problem and it illustrates one of the pitfalls that you get into with any of these arbitrary rating schemes. I am confident that, if we took recordings of those two noises and put them before a judging panel, that they wouldn't judge them more than a decibel apart, despite the fact that the numbers came out some other way.

There are similar instances where we have run into this sort of thing. We have to be careful.

Mr. COLLIER. But there would be a noticeable difference in the same 6 decibels in the difference between that of the turbofan jet and the other jet?

Mr. KOLK. That is all over, yes.

Mr. COLLIER. The same 6 decibels as it applies to the difference created by the suppressor?

Mr. KOLK. Yes. Could you make a sketch on the board to clear this up?

Mr. COLLIER. I want you to know that I was confused and I am confused on a much higher level now.

Mr. KOLK. Let me work you over a little bit more. You will get even more confused.

If we make a chart of decibels this way versus time this way and we say arbitrarily that at some time timing will zero here, the airplane is overhead the character of the alteration of the noise in the conversion from the turbojet to the turbofan during takeoff—and I want to make that very clear, I was talking about takeoff noise then—is that this noise will build up, reach a peak shortly after the airplane went overhead and fall off like so, and where, oh, to put some numbers on it, maybe two of these divisions are a second—when we make a conversion, when we make a conversion the local level of noise came down so that there is about the same drop in the noise level throughout this entire path, roughly speaking.

There are some local humps and bumps in the here and there, but that is the general character of the relationship.

In this other case we are dealing with a noise picture that looks something like this. The noise built up, and as the airplane got overhead this fan was producing a high-pitched whistle which was radiated out almost at right angles to the airplane in a very sharp well-developed lobe of sound, and, as the airplane went over, it traveled rapidly past, so there was a sharp peak on this thing that looks something like this.

When the sound suppressor was added to the back end this peak was eliminated and the character of the sound was like so. The meter read this value versus this value and the different 6 decibels.

But your ear is more accustomed to listening to the whole area under this curve instead of a sharp pip. This is the explanation I

have. I heard it and I was surprised because I could tell the difference between the kind of sound that was produced and I could hear this whistle as the thing went over, but the elimination of it didn't give the sensation that very much happened.

Mr. COLLIER. Mr. Chairman, I have just one other question I think pertinent. With all of this testimony, I wonder if anyone would offer any idea as to what resident vacant radius should be established in locating a busy jet airport facility with multiple direction takeoff and departure strips.

Specifically, I am referring to an area such as O'Hare International Airport in my district. Assuming there were no residents there—and they were there long before the airport but assuming there were not—what would be the thinking based on the optimism of a technical solution to the problem as to the area that should be vacant around the airport under today's conditions of noise created by jets: 2 miles, 3 miles, 5 miles?

Dr. VON GIERKE. As I tried to indicate this morning, we are working on a planning procedure to come up with an appropriate estimate for this area. I think it would be very hard to give you any indication now, offhand what this area should be. The reason for this is that if you want to plan an airport now you should plan it for the next 10 or 20 years and the question is what types of aircraft are you going to operate, do you want to plan it for high traffic density like you have in New York, or do you plan it for a few planes per day? All these things enter the decision you have to make with respect to the zone area.

I think it doesn't have to be a vacant area as you indicated. It could well be industrial area where you prescribe types of buildings with special sound treatment, possibly without windows. In such an area zoned for industrial use you could tolerate higher levels in these areas anyway because you would have no interference with sleep and nighttime operation.

Mr. COLLIER. The point I am trying to establish here, if I may, is that I realize this projection into the future creates many problems and that the type of area has a definite bearing on it, but I am looking at the egg that has already been laid here and I am trying to determine, if we started tomorrow to build an airport in that area, how far would we build from a residential noncommercial or I should say nonindustrial area to establish the fact that within this existing area there is an admission of a situation that is a bad situation.

I can get this answer only by saying, if we were doing it tomorrow, what would we provide in the way of a resident vacant radius around this area, building the airport to meet the existing problem?

Dr. VON GIERKE. The estimate in the Doolittle report more than 10 years ago I think was that an area 2 miles out from the takeoff point should be a cleared area. Very roughly I would say that a minimum requirement today would be, probably, to double this distance.

The CHAIRMAN. Would be what?

Dr. VON GIERKE. To double this distance, but again I think it depends on the type of aircraft you want to operate. The requirements are different if you plan to operate aircraft with a range of 1 to 2,000 miles or if you plan an airport for oversea takeoffs.

Mr. COLLIER. I am talking about an airport that has 129 jet flights leaving and arriving daily, both short flights and long flights, from California to New York and all intermediate points and at different times.

Mr. TYLER. But the point is this 2 or 4 miles is not a radius. This is a strip off the end of the runway.

Mr. STACK. This is a fan strip off the end of the runways.

Mr. COLLIER. I spoke in terms of a radius because it is my understanding that some airports have a given takeoff direction and others have multiple takeoff and landing such as is the case at O'Hare, which would not be the case at the Boston Airport which takes off over the harbor.

Dr. VON GIERKE. The strip wouldn't be more than 1 to 2 miles wide under the takeoff path and it would get narrower and narrower the farther out you go, and even if you have this in two or even four directions it is by far not a circular area.

Mr. YOUNGER. Would the gentleman yield?

Mr. COLLIER. I would be happy to yield.

Mr. YOUNGER. If you take the FAA program for Dulles that is designed for at the present time, it is designed for jets, for long and short hauls and they condemned 10,000 acres.

Mr. COLLIER. But that is 27 miles from the city and I got the impression today that it was imperative and incumbent that airports be much closer to the city than it is, unless I misunderstood the general thinking that seemed to prevail.

Dr. VON GIERKE. I think this depends on the type of transportation system you provide from the city to the airport. Considerable improvement can be made there by proper planning. I come back to the point I tried to make this morning, this is a very complex problem in overall city and airport planning, and I include in this planning the transportation system to the airport.

Mr. KOLK. Congressman, if you visualize going out in the boondocks somewhere in the middle of a bunch of farmland with low population density and building an airport, you have to build two things. You have to build the airport and then you have to build a road out to the airport and the road usually takes the form of an expressway which didn't exist before.

When you build that, you give easy access to that area, to the center of the urban population. The result of the road is to bring in people and whether you like it or not, you are going to wind up with a great deal of development around the airport for two reasons.

One is the airport is the center of activity and people want to be near the center of activity, but the second is the fact that the road is there and makes it hard, because people want to go there because they can get there.

Mr. COLLIER. My sympathy is not particularly with the people who move there once the airport is there, but I have a deep sympathy for the people who were there long before the airport, and so, if the airport can by its very nature draw a population out there, at least these people have moved out there with their eyes open, with an understanding of what they are going to be faced with and therefore, as I say, I am not unsympathetic.

I am concerned with communities within a couple or 3 miles of an airport that were there before when the runways were golden rod and weeds, and I think there is an understandable difference in the two.

Mr. KOLK. I agree with your point.

Mr. COLLIER. I am not suggesting that we build airports when I use a plane as much as I do, out in the wilds someplace. We all understand that this is part of progress, but we must understand that there is a very serious problem on the other side of the fence and the solution will not come with a hope and a prayer.

That is all I have, Mr. Chairman.

The CHAIRMAN. Gentlemen, I have a good many things in mind, but I am not going to take the time to expand on them now. I recall, following through on the thought that was expressed just then, that when there was a great deal of complaint being registered because of noise from the Washington National Airport there was a motel constructed almost at the end of where these planes take off. I wondered, as I watched that development, if they would ever be able to get anybody to stay there. I have never stayed there at night although I have been out there on a few occasions during the noon hour. As I understand, they have constructed the building so the noise from the airplanes doesn't bother people. I am not going to lay myself open for attack from millions of people that live around airports, that everybody build their houses likewise.

Mr. STACK. Do you want to say something about it?

The CHAIRMAN. I tried to say it at the Washington International Airport last summer and even so I got some rebuff. But if I lived around an airport, I think I would try to start finding ways and means so I could protect myself.

There are many ways that might alleviate some of the problems and I hope some of the complaints.

One of you gentlemen mentioned afterburners. That certainly was interesting to me although no one else said anything about it.

What is an afterburner and what does it accomplish?

Mr. TYLER. Afterburner. This is what is used on fighters to give them about 50 percent extra thrust during takeoff and it makes a tremendous noise during the time when the afterburner is on, but then when you turn it off and go back to normal thrust you find yourself at a much higher altitude.

The CHAIRMAN. In other words, by the use of the afterburner you get off much quicker?

Mr. TYLER. That is right.

The CHAIRMAN. I went to the South Pole one time with the committee and some technical people on the Geophysical Year operation. We took off from an airport in New Zealand and actually got off with a very heavy load because we were to be airborne 14 or 15 hours. They put an extra something under the plane to raise us off the ground.

Mr. TYLER. JATO?

The CHAIRMAN. Yes, and it got us off the ground and in the air much faster. Is an afterburner anything like that?

Mr. TYLER. That is the same principle, extra thrust during takeoff.

The CHAIRMAN. Does that cost a great deal?

Mr. TYLER. Yes, it is very expensive.

Mr. STACK. It is terribly noisy.

Mr. MILLER. It considerably increases the noise problem on the airport itself and immediately adjacent.

The CHAIRMAN. Our problem is after they get in the air a couple hundred feet out.

Mr. MILLER. It is one sacrifice to gain somewhere else.

The CHAIRMAN. Yes, that is like trying to pump up an old, wornout, rotten tube. It will blow out and while you are trying to get that fixed, it will blow out in another place.

I want to thank you for this discussion that we have had here today, Mr. Stack, and every member of this panel.

There are two fundamental things about this that I want the members of this committee to hear, because it is going to have something to do with the future.

In the first place, I get the impression that most of the developments that we experience in this field of aircraft, are largely the result of research and development through the military programs. Is that not true?

Mr. STACK. A large part of it is, sir, I guess, except in the case of the fan engines, which was purely from the commercial side.

Mr. KOLK. I believe that the fan engines, the hush kit development, and even the sound suppressors themselves actually stemmed from commercial considerations. The sound suppressor was originally proposed by an Englishman who worked for Rolls Royce on a private enterprise deal.

He invented something, and everybody took the idea up, and the development of the devices were made by the engine companies and the aircraft companies of this country and were actually specified for the airplanes at the time the airplanes were purchased by the airlines.

Admittedly we were darn fools. We didn't know how to specify them, but I don't think the military had anything to do with the development of sound suppressors.

The CHAIRMAN. That isn't what I mean, Mr. Kolk. I mean, as an example, jets. The principle and development of the jet itself was the result of military necessity, was it not?

Mr. KOLK. No. The theory that the noise goes up with the eighth power of the velocity was propounded by an Englishman who is a professor at the University of Southampton, or at least he was at the time.

The CHAIRMAN. I believe you still haven't gotten what I had in mind. Had we not had the war and our national defense at stake, do you think the money and the know-how was then available to have produced these types of powerhouses?

Mr. KOLK. Powerplants, the jet engine. That is true, the war and the military brought us to where we are today in that technology.

The CHAIRMAN. Yes. And that is not only true in that particular type of powerhouse, but a lot of other things.

Mr. KOLK. Yes.

Mr. STACK. On the other hand, sir, I think that had it not been for the war we still would have had a significant commercial air transport system which might have developed purely on commercial lines.

The CHAIRMAN. I have a feeling it probably would have developed in a gradual way and a much more satisfactory way.

Mr. STACK. The first of the real successful transports was a truly commercial venture all the way.

The CHAIRMAN. Now, you are talking about supertransports. I assume from what was said here and from what I have heard before, the Congress will be called upon to appropriate tremendous sums of money to develop it primarily on the basis of national defense. Would you agree with that?

Mr. POWER. Congressman, not exactly, not primarily on just as a national defense or prestige type of development. For a healthy, vigorous growth of our economy and of the air carrier industry, I think that this is needed on that basis; but not based solely on your view on this as a military development. That is part of it, but not all of it.

Mr. YOUNGER. Will the gentleman yield?

The CHAIRMAN. Certainly.

Mr. YOUNGER. Isn't this a development of the subsonic bomber? Wasn't the subsonic bomber developed and the subsonic transport will follow, the same as the jet transport now is a followup of the bomber that we had during the war?

Mr. POWER. Yes, sir, to a certain extent. We have several supersonic—well, two that I know of, and have in mind. One is the B–58 and the other is the RS–70. Granted, we are now actively engaged in a program with the Air Force to take advantage of this technology, the method of construction and fabrication technique even down to such things as noise——

The CHAIRMAN. If it were not for the military angle, I would express my opinion that it would be very difficult to get enormous appropriations out of the Treasury of the United States for that purpose. I can say that to you and I have that feeling.

Anyway, I was leading up to this question: In my judgment these matters are presented and developed at great cost to the taxpayers, to meet the defense needs of the country and our own security. That is my opinion although I may be wrong.

However, I should think that you gentlemen who are in the industry, must be depended upon by the military as well as commercial transport, for the development of this mode of transportation. It behooves everyone to be on the alert in the future for all such developments at the time they develop. I don't know how long I will be around here. We are talking about this RS–70 not being available until when, 1969?

Mr. POWER. You are talking about the supersonic transport?

The CHAIRMAN. No; I am talking about the jet bomber, S–70.

Mr. POWER. No, sir, I think it is going to roll out. I am not certain but I think it is going to roll out in April.

Dr. VON GIERKE. I think the first test flight is scheduled for next year.

The CHAIRMAN. First test flight, yes, but the first test flight is a long way from practical application.

Dr. VON GIERKE. I think there is a difference if you compare the supersonic transport and RS–70 development with the development of the previous jet aircraft. The supersonic aircraft developments are more or less parallel. The RS–70 is not so far ahead of the supersonic transport as early jet bombers were ahead of the Boeing 707.

The CHAIRMAN. I think the problem that we are talking about today ought to be brought into the picture from the inception of these developments and that includes the supersonic transport.

Mr. STACK. Mr. Chairman, I think this is the case. The first expenditures of the Federal Aviation Agency which were listed were on the order of $7 million for propulsion, and one-fourteenth of that total was on this very noise question related to this.

The CHAIRMAN. That is FAA?

Mr. STACK. Yes. Of course, this is supported by other work. I think the situation isn't perhaps as hopeless as some conclusions that might be drawn from some of the things that were said. It is generally common among technical people who are trying to solve difficult problems to lay the problems on the table and not to varnish them over in their difficulty and I think that has been done here today.

The CHAIRMAN. It certainly has, and I want to compliment you for it.

Mr. STACK. But this doesn't mean that there aren't going to be consistent, steady improvements. There has been enough work done now so that these things are reasonably livable in most places. There are a few critical areas which create most of the difficulty.

Now, we are going to get better jet engines and better fan engines, and I honestly think that the jets are going into La Guardia or La Guardia won't be but a heliport. The jets are going into all of them because, fundamentally, as the fan engine develops it is a much simpler and a much better engine than turboprop.

I would suppose that in the way of turboprop engines, perhaps you have more servicing troubles and maintenance on the propeller and its gearing, than you have in your engine, don't you?

Mr. KOLK. Definitely.

Mr. STACK. The propeller and the gearing and this sort of thing are a difficult maintenance problem and so people are going to the thing that will operate better and with less maintenance. I think it is fair to say that the trend is going to be toward jets for a higher and higher proportion of the total aircraft built, so if the place is going to have an airport, somehow or other, we have to work out what it takes to get them accepted there.

The CHAIRMAN. As someone said here today, with the development of new engines, the jets now are not going to be any more noisy than the old props, conventional types. I haven't heard anyone dispute that yet. I hope that is true. It has been suggested that I ask this question.

Mr. YOUNGER. Just one question.

The CHAIRMAN. Yes.

Mr. YOUNGER. I got the impression in the testimony today that we are going to have more powerful engines and that we are looking to more noise instead of less noise. Is that the testimony?

Dr. SUCIU. From the engine?

Mr. YOUNGER. From the engine standpoint.

Dr. SUCIU. Yes. I think there is a difference of opinion on that point, however.

Mr. STACK. I think the point on that is this: We are going to more powerful engines if we assume that we cannot decrease any the percentage of total energy that is in the sound, then that engine is capable under certain conditions of operation of thrust and everything else

in a given situation of putting out more noise, but I thought Mr. Kolk in his discussing some points here with some of the others, had made quite a point of matching the right engine to the right airframe and through the right amount of bypass ratio and so forth, that the net effect to those living in the surrounding areas is actually less objectionable noise nuisance.

Mr. YOUNGER. That is true, but I am taking the words of the engine manufacturers.

Dr. SUCIU. What I am saying is really not inconsistent with Mr. Kolk. The engine is noiser, but with the things you can do, the net effect to the surrounding community may not be any greater.

The CHAIRMAN. That is exactly the reason I brought the military into it because I got the very different net impression. I think it was said in so many words, that for the military, one type of engine will be developed and, apparently, with no concern about noise, and for commercial industry, another type of engine. I think we will have to get the military up here and see how concerned they are.

Mr. TYLER. Mr. Chairman, I think there is a point that should be brought out here. The supersonic transport and the long-range transports which will undoubtedly have this problem of requiring increased thrust over and beyond what we have now, will probably be operating out of airports like Idlewild whereas the airplanes operating out of La Guardia could very well be relatively short-range airplanes in which the improved techniques which are being developed year by year could very well give you less noise.

Mr. COLLIER. What do you call a short range?

Mr. TYLER. Something on the order of a few hundred miles as compared with several thousand miles for the long-range airplanes.

Mr. KOLK. I could amplify this point. Actually, today if we measure the noise under takeoff of a DC–6—you know, we have forgotten the DC–6; it has been around a long time—and we take one of these 720 big four-engine jets and we put the two airplanes on the same mission, short-range mission, and by that I mean anywhere from 200 to 500 miles, and I particularly worked this sum out for a New York-Chicago range, which is quite of interest to us—we found that the noise that was made by the existing jet airplanes actually on a perceived noise decibel basis did not exceed that of the DC–6.

I am talking about takeoff noise, noise produced under the flight path during takeoff, climb, at the same distance from start to start of takeoff. This is accurate to within a decibel or so. This is a fantastic achievement, I believe, when we consider what happened when jets first started in but it is there and the proof is in the numbers. Anybody can get it with a sound meter. We can do better than that.

The CHAIRMAN. It has been suggested—Dr. Veneklasen, you probably could comment on this—that I ask if it is possible to develop a method of measuring aircraft noise which accounts for its physical and psychological effects on persons.

Dr. VENEKLASEN. I believe that project is already underway, Mr. Chairman. The question is still whether there is enough information of a psychophysical nature to put into the design of that meter. Some think there is and some think there isn't. This is an area which certainly needs further investigation.

The CHAIRMAN. Through such developments it would be hoped, I suppose, to bring about noise levels that would be acceptable for the airport environs then?

Dr. VENEKLASEN. I would like to stress that I don't believe the meter per se is going to help to bring about better noise situations around the airport. If I would be allowed to make a point, I feel very strongly that there are many varieties of situations in the airport picture right now. There are some which are very definitely in a hardship situation. There are others which are in existence now and threaten to become hardship situations if something isn't done about it, and there are future ones to be planned and there must be assurance that they can be planned without developing into hardship situations.

It is easy to look at the technical group and place upon us the problem of keeping the noise away from the people or reducing the noise to an acceptable level for the people. But the fact that a schoolhouse is interrupted many, many times during the day or that certain homes become almost unlivable is not our doing.

I, therefore, wish to stress if I may, with all due respect, that this is a material problem and you men who are listening to us today and now asking questions, must be part of that team and that it is up to you, I think, to keep the people away from the noise. Otherwise, the problem is too difficult.

If we must be asked to restrict noise to wherever the people happen to go, this may become a very impossible problem. We have to look to you to help keep the people away from the noise.

The CHAIRMAN. I would share the view that you have just expressed as to the responsibility. I think that all do have a responsibility, but carrying it just one step further, it has been suggested by Mr. Collier that I ask to what degree do flying techniques create wide variables in noise emission of jet planes?

Mr. TYLER. I mentioned this afternoon a test program in which noise levels were measured under the approach path at Idlewild, and the most surprising point that came out of that study was that as to the variation in noise level for a given model airplane as flown by a large number of different pilots, this variation was so large that it overshadowed the relatively minor differences between fan engines and jet engines or one kind of fan as compared with another. This pilot technique is a big variable.

The CHAIRMAN. Mr. Conway had a question.

Mr. CONWAY. To carry on with what Mr. Veneklasen was saying, until we have this additional psychophysical information that Dr. Kryter referred to, to establish this aircraft noise measurement, with the techniques and the know-how that the engine manufacturers have, they can change noise sufficiently so as to meet the New York Port Authority's requirement at New York, for instance, and still come up with a powerplant which is more irritating to the airport neighborhood than the one that they have modified, isn't that true?

Dr. VENEKLASEN. If you restrict too quickly to a given means of reducing physical data to psychophysical data, you allow for the possibility of adjusting the engine to fit the criteria, so this is something to be very careful about in establishing too quickly a process and freezing it. This is always the problem is standardization, but, believe me, there is know-how within the technical community to help decide how and when to do this.

The CHAIRMAN. Gentlemen, I want to again thank you for your time and the effort that you have put into this very full day. I wish it were possible for every Member of the Congress to have had the opportunity and privilege that we have had today to listen to what you have had to say about this important problem. I think that most everyone, as I have been, would be greatly impressed not only with the efforts, and the thought, and the creative attitude toward the problem, but the responsibility in all fields. I don't think the Federal Government can assume this total responsibility. I think the Federal Government does have a tremendous responsibility in it.

As would be expected, divisions of thinking among the panel have developed today. I gather a note of pessimism in those of you that are engaged in the engine production as to any great hope in the future. I get a note of optimism from the airline officials and the others of you who are here today that not only has progress been made which has been recognized by all, but there is hope in the future.

With that situation facing the American people, I still have a feeling that through these joint efforts, there will be some way found to reach a part of the problem, with the people who live around the airports, with the people who have responsibilities at the airports, with the ingenuity and the know-how in the industry, and the engineering and scientific research that will be expected, I think, by everybody putting their shoulders to the wheel and pushing forward together, we can accomplish something out of it.

You have helped us a great deal to develop the various questions incorporated in the resolution developed by the Rules Committee, introduced by Mr. Delaney of New York at the time, and I want to express on behalf of the committee our very special thanks to you, Mr. Stack, and to all you gentlemen who are members of this panel, for your generous efforts here and for the assistance you have been to this committee and thus, to the Congress, and I am sure to the American people.

I apologize if we kept you overtime. I told you yesterday we hoped we would not be here so long, but that is how these things go.

We listened to you because it was very interesting. I hope we have not inconvenienced any of you who have arrangements to get out of the city early this evening.

With that, I want to again thank you very much.

The committee will adjourn until 10 o'clock in the morning at which time we will have the third panel on this subject.

(Whereupon, at 5:15 p.m. the hearing was recessed, to reconvene at 10 a.m. on the following day.)

AIRCRAFT NOISE PROBLEMS

THURSDAY, DECEMBER 6, 1962

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TRANSPORTATION AND AERONAUTICS
AND SPECIAL SUBCOMMITTEE ON REGULATORY AGENCIES
OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittees met, pursuant to recess, at 10 a.m., in room 1334, New House Office Building, Hon. Oren Harris (chairman of the committee) presiding.

The CHAIRMAN. The subcommittees will come to order.

Today we have the third and final panel on the question of abatement of airplane noise. I have looked forward to this occasion since we organized this program. We have had 2 days of most interesting discussion by outstanding people knowledgeable in this field and of these problems. As I suggested to them, the outline that we presented for your discussion and consideration was taken from the rather broad language of the House resolution which was introduced by our colleague from New York, Mr. Delaney, which was rather specific on various items which this committee was directed to study.

Under the resolution which the House approved and requested that this committee go into, we organized this program. We have had a very fine record made thus far. I know this will add to it tremendously. We have had a very thorough discussion from the operational standpoint of some 10 or 12 people with a lot of experience and background in the field.

Yesterday we had about a dozen outstanding engineers and scientists who likewise added to that phase of it. I anticipate there will be a little more argument among this group here today than there has been among the two panels that we have had the last 2 days, and frankly, I think I will know more about your discussion today than I did some of the discussions in the past 2 days because, having been a lawyer myself for a good many years with some training and educational background in this field, and I will be more at home with today's discussion.

You gentlemen have been selected because of your particular positions, not only individually, but the groups and organizations that you represent. We deliberately made this panel somewhat diversified because we wanted to get your varying viewpoints.

The Honorable Welch Pogue, who is well known in the field of aviation, and has served admirably and made a great record as Chairman of the Civil Aeronautics Board back in the forties and is one of the outstanding lawyers of the District bar. He has contributed much to this program and has generously agreed to moderate it, and we are fortunate to have him assume this responsibility.

Mr. Pogue, let me thank you and let me thank all of the members of the panel for your willingness to undertake this important matter. As it has been with the other two panels, we will turn it over to you. We will have you introduce the members of the panel for the record. You may identify them or have them identify themselves at this time and any further information as to background and experience that you want to present for the record we would be glad to have on each individual panelist. With that statement you may proceed.

L. WELCH POGUE, Moderator

WARREN CHRISTOPHER	**JOHN STEPHEN**
SIDNEY GOLDSTEIN	**FRED STICKEL**
JAMES HILL	**JAMES E. STRUNCK**
Maj. Gen. ALBERT KUHFELD	**LYMAN M. TONDEL, Jr.**
LEANDER I. SHELLEY	**SPENCER M. WILLIAMS**
CROCKER SNOW	**MORTON H. WILNER**

Mr. POGUE. Thank you, Mr. Chairman. I would like to enforce the statement you made to the effect that each member of the panel, as I understand it, is here because of his individual capabilities, and I have been asked to state that the statements he makes here may not necessarily represent the view of the firm with which he is affiliated and if he cares to distinguish in any instance he may do so.

It has been agreed that I will introduce the members of the panel in alphabetical order and I will ask each of them as his name is called to stand and state for the record his affiliation as he cares to state it.

Mr. Warren Christopher.

Mr. CHRISTOPHER. Mr. Chairman, I am a lawyer from Los Angeles, Calif. I have participated in litigation on these matters on the side of the airline defendants over the last several years. I have also participated in the Los Angeles Sound Abatement Coordinating Committee.

However, as Mr. Pogue has indicated, I am appearing here today not on behalf of any of those organizations but in my individual capacity.

Mr. POGUE. Mr. Sidney Goldstein.

Mr. GOLDSTEIN. Mr. Chairman, I am a lawyer from New York, general counsel of the Port of New York Authority. I also am privileged to serve on various bar association committees on aviation as well as the NIMLO organization. I have been engaged in litigation involving airports. I am presently engaged in litigation involving airports and to some extent of course with respect to pending litigation my remarks will necessarily be restrained.

Mr. POGUE. Mr. James Hill.

Mr. HILL. Mr. Chairman, I am Deputy General Counsel of the Federal Aviation Agency and chairman of the Aviation Law Committee of the Federal Bar Association.

Mr. POGUE. Maj. Gen. Albert Kuhfeld.

General KUHFELD. Mr. Chairman, I am Judge Advocate General of the U.S. Air Force.

Mr. POGUE. Mr. Leander I. Shelley.

Mr. SHELLEY. Mr. Chairman, I am general counsel of the Airport Operators Council. Incidentially, I am a lawyer from New York and on occasion have represented various airports and served on various bar association committees. Any views I express, however, are not necessarily those either of the Airport Operators Council or of any particular member.

Mr. POGUE. Mr. Crocker Snow.

Mr. SNOW. Mr. Chairman, I am director of aeronautics for the Commonwealth of Massachusetts. I am past president of the National Association of State Aviation Officials and I am the only non-lawyer on this otherwise distinguished panel.

Mr. POGUE. We will turn to him for much advice I am sure.

Mr. John Stephen.

Mr. STEPHEN. Mr. Chairman, I am general counsel for the Air Transport Association of America which is composed of the certificated scheduled airlines. I am also a member of the Legal Committee of the National Aircraft Noise Abatement Council and various aviation committees of the American Bar Association.

Mr. POGUE. Mr. Fred Stickel.

Mr. STICKEL. Mr. Chairman, I am an attorney from New Jersey in general practice. However, I have specialized particularly in municipal law and zoning matters in particular.

I represent several municipalities in the State of New Jersey generally and as special counsel. I am supposed to know something about this zoning business, but at this point I don't think anybody knows anything about it. However, necessarily, what I say here today are my own personal views and I do not represent the municipalities of New Jersey or the country.

I also am chairman of the Committee on Zoning and Planning of the National Institute of Municipal Officers.

Mr. POGUE. Mr. James E. Strunck. Mr. Strunck will arrive shortly. He is assistant corporation counsel for the aviation department of the city of Chicago.

Mr. Lyman Tondel, Jr.

Mr. TONDEL. Mr. Chairman, I am a member of the New York bar. What knowledge I have on this subject is derived from the fact that my firm has represented various airlines in connection with these airport noise problems, I might say both in connection with litigation and threatened litigation and also in connection with the efforts to reduce the problem.

In the latter connection I am also on the legal committee of NANAC, the National Airport Noise Abatement Committee. What I say is in my individual capacity. I appreciate being here.

Mr. POGUE. Mr. Henry Weiss, who is a member of the law firm of Cohen & Weiss in New York City, is general counsel for the Air Line Pilots Association. He is on the panel, but due to an illness in his family will be, as I understand it, unable to be here today.

Mr. Spencer M. Williams.

Mr. SPENCER WILLIAMS. Mr. Chairman, I am the County Council of Santa Clara County, Calif. This is just a few miles south of Mr. Younger's district in California. The County Counsel is the chief civil attorney for the county. I am speaking not only for myself but am authorized to speak for the National Association of Counties. I

would like to make one other thing clear if I may at this time. I believe, and it is our position, that while the committee is primarily considering jet noise, this is a problem that may well face the owners of nonjet airports and that in establishing any criteria this committee takes those factors into consideration also.

The CHAIRMAN. The resolution specified that we were directed to study.

Mr. SPENCER WILLIAMS. Thank you.

The CHAIRMAN. So we are authorized and directed to study the abatement of noise, period.

Mr. POGUE. Mr. Morton H. Wilner.

Mr. WILNER. Mr. Chairman, I practice law in the District of Columbia. I am general counsel of the Aero-space Industries Association of America and as such I am taking my turn not by ability but just taking my turn as chairman of the legal committee of the National Aircraft Noise Abatement Council.

Mr. POGUE. Mr. Chairman, that completes the panel membership of Panel III. In introducing the discussion I think it appropriate to point out that we live under a Federal constitution which says that no person shall be deprived of life, liberty, or property without due process of law, and it provides that no State shall do this, but the law recognizes the necessity of effective limits on these fundamental rights.

The police power of the State, which is that implied basic power of regulation for the protection and promotion of the general welfare, justifies zoning, and antinuisance, and other protective measures without the payment of any compensation to the one restricted.

Where in this crossfire does the property owner stand who claims that his property is rendered valueless or that its usefulness is damaged because of aircraft noise?

Well, obviously, this problem requires a balancing of interests. We are not in an area which is either black or white, as all of us know. The private property owner's right to have freedom and the enjoyment of his property must give way, to a reasonable extent, to the larger interests of the public as a whole in its need for the enjoyment of the remarkable facilities of modern fast transportation. Neither side can be completely satisfied.

Each must accommodate its claims to the needs of the other. It should be made clear that no one knows the answer to all of these questions today, since this is an area of law which is not fully developed. It is being hammered out case upon case, statute upon statute, and regulation upon regulation. We can scarcely see the outlines of the future as yet, so please don't expect too much of us in this gray period of the dawning of our jet age. We shall do our best, but no one can be sure of the developments to come.

Now, we have divided our panel discussion in its initial presentation to you into four major parts. The first deals with existing legal rights of the private citizen who is aggrieved by aircraft noise; second, prelitigation preventive measures which might be taken by various interests; third, some discussion of legal rights against similar interference in other fields than aviation; and, fourth, the desirability, or lack of it, as the case may be, of increased Federal action directed toward other levels of government in attempting to meet this noise problem.

I might say in this fourth category that the range of Federal Government participation in metropolitan area activities has been substantial in the last 10 to 20 years.

The following 10 Federal programs may be cited. There are probably others, but I selected these 10 to illustrate this last point.

(1) The air pollution abatement program.
(2) Federal airport aid.
(3) Civil defense.
(4) Natural disaster relief.
(5) Federal aid for urban highways.
(6) Hospital and medical facilities surveys and construction.
(7) Public works of various kinds.
(8) School lunch and milk program.
(9) Low-rent housing and urban renewal.
(10) Water-pollution control.

In this fourth category, therefore, there may be certain possible Federal activities analogous to some 1 or more of these 10 Federal activities which I have mentioned which would be useful to pursue in the aircraft noise control field and the fourth part of our presentation will be dealing with that field.

Turning to the panel presentation, no formal assignment of topics to panel members has been made. Panel members have been urged to speak their respective points of view freely and contribute in any case where they have something to add to what the first speaker says; and they have been urged, particularly, to identify any thoughts or views that any panel members may have to urge for further consideration in connection with possible legislation.

Now let us turn to the first category, existing legal rights of private citizens aggrieved by aircraft noise. I have asked Mr. Tondel to discuss briefly the status of such existing legal rights, whether or not they are being asserted and on what theories, and whether or not there is a trend toward using one theory in preference to another. Also, if he cares to do so, he may include such comments as he chooses concerning the measure of damages on these existing rights.

Mr. Tondel.

Mr. TONDEL. Thank you, Mr. Pogue, and Members of Congress. While Mr. Pogue has asked me to speak on the subject of legal rights and remedies available, I want to state at the outset that, based on 10 years of experience in this field, I am convinced that most of the airport neighbors do not want to shut down an airport by injunction or even to seek money damages. The remedy most of them want is noise reduction, and that is why it is so important for all concerned to continue the efforts in that direction which have been described these last few days and of which the hearing itself is indeed such an important part.

I think it is important for us to keep in perspective the legal remedies side of this picture, which is so largely a practical one for the people immediately involved.

There are three theories on one or more of which airport noise suits have usually been based. These three are the theories of trespass, or nuisance, or taking. The trespass notion is predicated on a physical invasion of the airspace over one's property.

Although the word "trespass" is sometimes used at this time, the theory has been pretty well dropped. The reason is because of the decision of the U.S. Supreme Court in *United States* v. *Causby* in 1945 and because of section 104 of the Federal Aviation Act. In the *Causby* case the Supreme Court put an end, once and for all, to the ancient notion that the landowner owned all the way to the sky. It said that ownership to the sky has no place in the modern world, and then went on to say:

> the airspace, apart from the immediate reaches above the land, is part of the public domain.

Section 104 of the Federal Aviation Act says:

> There is hereby recognized and declared to exist, in behalf of any citizen of the United States, a public right of freedom of transit through the navigable airspace of the United States.

And section 101, subdivision 24, says:

> that navigable airspace means airspace above the minimum altitudes of flight prescribed by regulations issued under this act and shall include airspace needed to insure safety in takeoff and landing of aircraft.

Since navigable airspace is thus within these limits public domain and includes the airspace necessary for takeoff or landing, it is evident why the trespass theory has fallen into disuse, even where flights over the plaintiff's property are involved.

We know only one reasonably recent case where damages on the trespass theory were allowed and they were just nominal damages, so I think the trespass theory, in response to Mr. Pogue's question regarding trends, has fallen pretty much into disuse although the word "trespass" frequently shows up.

The next theory is the nuisance theory. This is the theory on which a layman, I am sure, would expect many such cases to be based, and that is indeed the fact. A nuisance case, of course, involves weighing the plaintiff's interest in peace and quiet—and the plaintiff, I am sure you appreciate, is, in each case, the airport neighbor—the plaintiff's interest in peace and quiet against the defendant's interest in the airport and in air transportation.

It involves ordinarily a weighing of interests. However, there is another doctrine that cuts across such a case. Where a public airport, created pursuant to a statute or ordinance is involved, which is usually the case, of course, with these great public airports, the doctrine of legalized nuisance comes into play.

Simply stated that doctrine is that where a public or quasi-public enterprise, like a railroad, or a gas plant, or a sewer system, or an airport, or the like, is expressly authorized by legislation, nuisance claims that arise out of the necessary and proper operation of the enterprise are frequently denied on the ground that they are nuisances legalized by the legislature which, within constitutional limits, authorized conduct which would constitute a private nuisance.

A legalized nuisance, legalized by the legislature in the fashion I have just mentioned, is thus usually actionable only if a taking is involved, or in some States where there is what is called a constitutional damage. While the application of the legalized nuisance theory varies from State to State, it has been quite generally followed in airport noise cases where the matter has arisen and only last December was

strikingly reaffirmed by the highest court of the chairman's State. We have checked the airport noise cases known to us that have been decided since 1955 and have found only two cases involving public airports where damages may have been held recoverable on a nuisance theory.

One was a public airport only in a technical sense, because the flights involved were test flights by an airplane manufacturer. It was by the lowest court of record, I believe, in Los Angeles County. The other was a case decided on the pleadings in Georgia. So the nuisance theory, although expresed and referred to as such in most complaints in this field, has, as you see, its limitations.

The third theory is the taking theory, and most such cases have been based in whole or in part on the theory that the plaintiff's property has been taken by flights over it in whole or in part and that, under the 5th or 14th amendment of the Federal Constitution or under provisions of the State constitutions, he is entitled to be paid for the property taken.

This was the theory of the famous *Causby* case in 1945. The question then comes down to what is a taking, and in the *Causby* case the Supreme Court put it this way:

> Flights over private land are not a taking unless they are so low and so frequent as to be a direct and immediate interference with the use and enjoyment of the land.

In the *Griggs* decision last spring, of which everyone in the room is aware, I am sure, the Supreme Court recognized again, as it did in the *Causby* case in 1945, that, and I am quoting, "The use of land presupposes the use of some of the airspace above it," but indicated again as it had in the *Causby* case, that the test laid down was whether the overflights, and I quote again, "made the property unusable for the purpose for which it was being used."

Now, I think it will perhaps surprise you to know that since 1955 we can only find 15 decisions, including those in the Court of Claims, representing perhaps a third to half of the total, where there has been recovery for a taking of the property.

Turning to the relief available, we know of no case in this period studied since 1955 where an injunction was issued, and I think the reason is obvious. Our national airport system is vital. For good, practical reasons, the Congress has properly preempted the field of air traffic regulation, and any injunction is inconsistent with the Federal control of the airways and with the proper and safe operation of the airways.

The other relief available is of course damages. The measure of damages in most of these 15 cases I mentioned where the plaintiff has been successful has been based on the depreciation in the value of the property taken that has been caused by the airplane operations.

I might say I am sure you are puzzled at the relatively small number of decisions in this field, and I think one reason for it is that, as I understand it, and this has been confirmed by authorities in the field, real estate authorities, overall property values around airports have actually been rising at about the same rate as the other property values in the areas, and it would seem that the amount of any such rise in value due to the presence of the airport would help offset any depreciation of the particular property due to the airport operations,

so I have a strong suspicion that when a complaining property owner analyzes his situation, with the help of his lawyer and his real estate appraiser, he discovers that the net loss may not be quite what he thinks.

That is one reason why I think the cases have been relatively few. I think with that, Mr. Pogue, that I have done as well as I can to state what the situation has been, at least in recent years.

Mr. POGUE. Thank you, Mr. Tondel. Another large area, very large area, of activity besides the civil operations is the military, and of the total aircraft movements in this country a very large portion of them are military. I am going to ask General Kuhfeld if he would comment upon the question of whether or not the Department of Defense defends civil suits seeking property damages resulting from noise produced by military aircraft operations merely with a view to reducing the alleged damages as much as possible, or is there a policy, General Kuhfeld, that the Department has or theory that it has as to areas of nonliability which it vigorously asserts in these cases?

General KUHFELD. Mr. Pogue and Mr. Chairman, I think that Mr. Tondel has given us a pretty good background on the various theories involved and I think that this enters into my discussion in this particular area.

I should start by saying that if we were talking about a pure noise case, we have defended all the noise cases and we haven't lost any of them, and this gets into your sonic boom area and so forth and so on. You have to get, as I see it, into the area of wrongful taking, such as overflights as emphasized by Mr. Tondel.

In your overflight cases, that is, under your Causby rule, it is true that in many of these cases we have compromised. We have settled and we have arranged for a payment based upon an appraisal and valuation. I think an example of that would be the Highland Park cases that occurred down around Hunter Air Force Base. Here we had a number of claims based upon wrongful taking because of the operation of jet airplanes and the overflight of jet airplanes in this particular area.

The developments were that there was no question about a wrongful taking while we used the old reciprocal type airplanes, but that the wrongful taking was initiated with the advent of the jet.

We did try a couple of those cases. After we had tried them the matter of liability was determined and therefore we went ahead and compromised other ones that were in the same area, but if you get into the pure noise, vibration, and smoke situation I think that we have been relying on the *Batten* case, which was decided in the 10th circuit. I think, this is important in your noise area. Incidentally, that was a 2-to-1 decision in which Judge Murrah, the chief judge of the 10th circuit, dissented, but in that case the court held, as a I say, 2 to 1, that the United States was not liable for pure noise, vibration, or smoke damage in the absence of a physical invasion of the property or, to put it in other terms, in the absence of overflights. Here the court spent considerable time in making a distinction between damage and taking.

The decision pointed out that under the Federal Constitution damages—and I emphasize damages—to property not taken are compensable only as consequence of or incidental to an actual taking. There has to be an actual taking involved, and the court defined the taking as governmental action short of occupancy when its effects are so complete as to deprive the owner of, and I quote, "all or most" of his interest in the property.

Now, I emphasize that that was a 2-to-1 decision, and it is interesting to note that a petition for certiorari to the Supreme Court has been made in that case. We had thought that probably last Monday the Supreme Court would have announced whether it had granted certiorari in that case or not, but it has not.

It hasn't made the announcement, so that whether it will grant certiorari or not I don't know, but perhaps when we get into this area there might be some interest in just a broad brush treatment of the facts in that case, because I think this brings us down to pure consideration of noise and smoke or vibration without any overflights or what we would call taking interposed.

During the period of 1949 to 1955 the plaintiffs in the *Batten* case acquired homes adjacent to what had been Topeka Army Air Field, but the field was not being used during this period when they acquired their property. In 1956 Topeka Army Air Field was reactivated, and it was enlarged, and it is now known as Forbes Air Force Base.

After the enlargement we started to use it for RB–47 jet airplanes and for KC–97 refuelers. The refuelers, of course, are propeller-driven aircraft. The plaintiffs in this case did not rely in their suit on overflights at all. They relied on sound pressures, and the evidence in the case showed that the sound pressure level for aircraft warmup operation when the airplanes were being warmed up and operated a hundred percent range reached 90 to 117 decibels of sound on the plaintiffs' property. This means something, because actually from the standpoint of the Air Force we require our maintenance personnel to use ear plugs when the sound level reaches 95 decibels, and we recommend that they use ear plugs at 85 decibels. Of course, these rules only apply within the Air Force when these men have to work for 8 hours in areas where these noise levels are continuous.

In this case, though, the lower court found that the plaintiffs suffered substantial interference with the use and enjoyment of their properties and that there may have been diminution in values ranging from 55 to 40 percent, but, notwithstanding, the court spoke about the decision in the *United States* v. *Willow River Power Company*, which is in 324 U.S. 494, if somebody is interested in it, which case said, and I quote:

> Damages alone give the court no power to require compensation.

There must be some wrongful act of the person being sued, in this case the Government, which is, in effect, directed toward an individual, and the court said that intereference suffered by the plaintiff in this case was similar in character to that noticed in varying degrees in the whole general area surrounding the base.

As I say, if a certiorari is granted in the Supreme Court, this is going to go into the area of pure noise, and we might get a different decision in that area.

I think I should say that there was a case in the State courts in New Jersey in which the Aerojet General was the defendant, and this case involved the preliminary runups of the engine that was used in the X–15. Here what was involved was a claim of wrongful taking by reason of noise, but the important thing, I think, to remember is that in the *Aerojet* case, which was decided in favor of the plaintiffs, there was a very limited amount of money involved. It wasn't a situation where the entire area around the place where the testing was being done was affected alike, but it was a situation where the noise was in effect directed noise, because the test engines were in a test stand, which, in effect, funneled the noise out over the property of these particular people that brought the suit.

That is our situation in connection with the noise cases themselves. I think everybody appreciates that the biggest number of claims that we get in the noise area involve the sonic boom, and in this particular situation we have never lost any case in the court based upon sonic boom, but we have paid literally hundreds of claims involving glass and bric-a-brac damage because of the phenomena that makes this sound and causes people to feel that their property has been damaged to a considerable extent.

We have made a lot of studies in the sonic boom area and we have definite ground rules as to how much structural damage can be caused by sonic boom, and the committee might be interested in this and Mr. Pogue suggested that I might mention it. I think as the committee knows, the Strategic Air Command has been flying practice missions, and perhaps the committee has had the opportunity to see the film "Tall Man 55," which goes into this whole area of the practice missions that are going supersonic. If it is a B–52 or B–58, it doesn't make any difference.

The Strategic Air Command announces its intentions before the missions go, if they are going over populated areas, and you have to run the missions over cities in order to get the practice that you need if the bell rings in order to do the job that they are required to do. They give advance notice of these missions and where they are going to go, and of course as a result of each one of these missions we get literally hundreds of claims.

One mission generated some 600 to a thousand claims of varying degrees, some of the claims ridiculous, because they asked for damages that couldn't possibly have been caused by the sonic boom, but we had one mission that was announced and then was canceled and we still got five claims for sonic boom damage, so that we can see that there is some misunderstanding in this entire area.

The CHAIRMAN. Why do you have to have these tests over cities?

General KUHFELD. Because, Mr. Chairman, these cities are plotted and they have the same radar reflection, the same circumstances, the same things present, the radar reflections and all that, as are present in the cities that have been set down as target areas in the event of an emergency. We in the Air Force tried to see if we couldn't eliminate the necessity of flying over cities, and in order to do that we built two reflector cities made up with reflectors that could be adjusted to give the same radar reflections that you would get going over the city itself. This didn't work.

This did not give the men the practice they would need if the bell rang in order to do the job, because I think all of us realize that in the event of a mission the airplane has a weapon that it is carrying to a target and it might be going a long, long way.

We are not trying to destroy cities. We are trying to destroy the military potential of the enemy and certain places in the city. We have other cities in the United States that are similar in contour and everything to the cities that we visualize may be target areas if the bell rings.

If the airplane goes to that particular area and doesn't drop its bomb on the target it might as well be an abort mission. They have to be able to hit that target with that weapon when they get there and this practice is essential in order to get to the point to be in a position where they can do the job, where they can use the weapons that we have, but I think maybe the committee might be interested in this, that in recognizing this whole area we have regulations that have been promulgated dealing with reducing flight disturbances that might cause adverse reaction of the public, and this goes into this sonic boom flights over cities and what restrictions we place on them and so forth, and if the committee is interested I would be glad to leave copies of those regulations with you.

The CHAIRMAN. We would be very glad to have them.

(The documents referred to follow:)

CHANGE **AFR 55-34A**

AIR FORCE REGULATION
NO. 55-34A

DEPARTMENT OF THE AIR FORCE
Washington, *27 July 1961*

Operations

REDUCING FLIGHT DISTURBANCES THAT CAUSE ADVERSE PUBLIC REACTIONS

AFR 55-34, 27 July 1960, is changed as follows:

6. Sonic Boom Logs. The characteristics of the sonic boom phenomenon are such that damage to buildings may occur as a result of booms. When a civilian area has been affected by Air Force aircraft, the Air Force must accept responsibility for restitution and payment of just claims. To assist in determining whether or not alleged claims are valid, all units which operate aircraft capable of supersonic flight will maintain an accurate record of all supersonic flights on AF Form 121, "Sonic Boom Log." (See attachment 1.) The log will include date, time, type and serial number of aircraft, altitude, speed, heading, location, and duration of flight. Each occurrence will be entered on AF Form 121, and this record will be maintained for a minimum period of two years and then destroyed in accordance with AFM 181-5. AF Form 121 will be reproduced locally as shown in attachment 1 on 10½" x 8" paper.

BY ORDER OF THE SECRETARY OF THE AIR FORCE:

OFFICIAL:

CURTIS E. LEMAY
Chief of Staff

R. J. PUGH
Colonel, USAF
Director of Administrative Services

1 Attachment
Sonic Boom Log

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AFR 55–34A

SONIC BOOM LOG

DATE	TIME	AIRCRAFT		FLIGHT DATA				
		TYPE	SERIAL NO.	ALTITUDE	SPEED	HEADING	LOCATION	FLIGHT DURATION

AF FORM 121, JUL 61

* U.S. GOVERNMENT PRINTING OFFICE : 1961 OF—580882

Attachment 1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1961

*AFR 55-34
1-3

AIR FORCE REGULATION
NO. 55-34

DEPARTMENT OF THE AIR FORCE
Washington, 27 July 1960

Operations

REDUCING FLIGHT DISTURBANCES THAT CAUSE ADVERSE PUBLIC REACTIONS

	Paragraph
Importance of Good Community Relations	1
Protection of Civilian Communities	2
Check List of Protective Measures	3
Keeping Pilots Informed	4
Keeping the Public Informed	5

This regulation outlines the practices established to minimize the disturbances of flight operations that cause adverse public reaction. It furnishes the commanders of all flying units with general guidance for dealing with local problems.

1. Importance of Good Community Relations. A friendly relationship between the personnel of Air Force bases and civilians in neighboring communities is an important factor in maintaining a high degree of morale and efficiency. Public reaction to the annoyances caused by the operation of aircraft at bases close to residential areas has, in the past, injured this relationship. In some instances it has created pressure to restrict operations. The increasing use of jet aircraft has made this problem even more serious.

2. Protection of Civilian Communities. Every Air Force base must strive to maintain the best possible relations with its neighboring civilian communities. Commanders must take every precaution to protect communities near Air Force bases from the annoyances and risks associated with flight operations. They should continually review existing traffic patterns, instrument approaches, weather minima, and operating practices. These factors should be evaluated in terms of the location of the base in relation to populated areas and other local situations.

3. Check List of Protective Measures. Commanders should use the check list below in planning the maximum protection for civilian communities. The measures outlined should be used whenever feasible. Commanders are also urged to take any other action they consider advisable to carry out the purpose of this regulation.

Preferential Runways	Minimum requirements for the use of a preferential runway system are: (1) Visual Flight Rules (VFR) must be in effect. (2) The wind is within 80 degrees of the runway head with a velocity of 13 knots or less. (3) The wind is within 90 degrees of the runways with a velocity of five knots or less. (4) The runway is dry and clear. (5) There are no obstructions adjacent to the runway. (6) The individual pilot concurs.
Traffic Patterns	Should be established to avoid populated areas as much as possible.
Take-off Techniques	All aircraft, whether proceeding straight out or turning, should attain 1200 feet above the terrain as soon as possible.

*This regulation supersedes AFR 55-34, 29 June 1955.

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AFR 55–34
3

Landing Techniques	Aircraft should join the traffic pattern at a minimum of at least 1200 feet above the terrain and should not descend below 1200 feet until turning on to base leg prior to starting final approach. Aircraft making a straight-in approach should maintain at least 1200 feet above the terrain for as long as practicable before starting normal descent on final approach.
Run-Up Pads	Should be located to minimize disturbances and risk of accident. Engine run-ups, other than preflight, should be completed in areas specifically authorized for that purpose and within established limitations, such as prescribed heading, maximum allowable power setting, etc. Blast fences and other protective devices should be used as much as practicable.
Engine Test Stands	Should be located to minimize disturbances. Hours of use may be regulated, if necessary.
Sonic and Supersonic Flights	Sonic and supersonic speeds during straight and level flight will be commenced and terminated at altitudes above 30,000 feet over land areas, and above 10,000 feet over water areas.
Sonic Booms	Must not be intentionally performed except: (1) during tactical missions which necessitate sonic or supersonic speeds; (2) during phases of formal training courses which require sonic or supersonic speeds or the performance of sonic booms; when these flights are required, they must be conducted over specially designated areas under close supervision; (3) during research, test, and operational suitability test flights which require sonic or supersonic speeds; these flights must be conducted over areas designated for this purpose; (4) when authorized by a major air command for demonstration purposes; (5) in an emergency when in the judgment of the pilot safety justifies a deviation from this general policy.
Chaff Dispensing	To preclude the potential hazards to life and property involved when "rope" elements of chaff are dropped over high voltage electric transmission lines, the following restrictions will be observed: (1) Chaff containing rope elements will not be dispensed during peacetime unless given special authorization by the major command headquarters having jurisdiction. Major commands may authorize dispensing of rope-chaff for tests and tactics requirements and for research and development requirements. Dispensing of rope-chaff will not be authorized for routine training sorties or unit simulated combat missions. (2) Special permission is required from the RCAF before dispensing rope-chaff over Canada. (3) When special authority is granted, the organization concerned will take precautionary measures to insure that the rope-chaff falls on water areas or on land areas devoid of high voltage electric power transmission lines. Computation of "safe areas" for each sortie will consider the following: (a) The geographical features of the area over which rope-chaff is to be dispensed. (b) The effect winds aloft will have on the rope-chaff during the time it descends from the dispensed altitude to the surface. (c) The rate of fall of rope-chaff. (d) Allowances required to compensate for possible errors in computing "safe areas." (4) Final responsibility for dispensing rope-chaff during peacetime rests with the aircraft commander, who will insure that the chaff is not dispensed from his aircraft unless the above provisions are met.

4. Keeping Pilots Informed. Copies of this regulation and of any directive, standard operating procedure, or other announcement dealing with efforts to carry out its purpose must be made a permanent part of all pilot information files.

5. Keeping the Public Informed. An understanding of the importance of flight operations to the over-all efficiency of the Air Force can help reduce adverse public reaction to the annoyances created by these activities. Commanders can further this understanding by stressing in their information services programs the value of the various flight operations at their bases. These programs should also explain the measures taken to hold to a minimum any disturbances to the neighboring civilian communities.

BY ORDER OF THE SECRETARY OF THE AIR FORCE:

THOMAS D. WHITE
Chief of Staff

OFFICIAL:

J. L. TARR
Colonel, USAF
Director of Administrative Services

General KUHFELD. I think that all of our problems have been in the Causby taking area, and that was discussed pretty much by Mr. Tondel.

One thing I think maybe wasn't brought out here before in these hearings. Recognizing the whole problem of sound and the necessity for noise suppressors, and I think that the Air Force has looked at this to begin with from the standpoint of our mechanics, our maintenance crews, because they just can't stand the noise, well, if a noise suppression pays off a dividend on the base, you get much more benefit off base because it is farther away than you do right close.

We have been working on this business of ground base noise suppressors ever since 1946 and tried all kinds of noise suppressors. I have here pictures of the latest model, and I am not going to discuss which firm makes it.

The Air Force has 20 of these suppressors scattered around that we are working on and trying to do something with. It is an expensive thing. It costs $70,000. When you are using the afterburner you have to use 800 gallons of water a minute in order to take care of the situation, but we feel that this can be adapted so we can use it on our bombers which don't use afterburner, and I think the committee might be interested in a picture of a noise suppressor that we are using in the Air Force and that we are studying and have been studying for some time. If the committee would be interested in that, I'll leave the pictures.

The CHAIRMAN. We would be glad to receive them for the committee's inspection, and I might say, General, that at a later time we are going to go into a lot of these things in much more detail with the Air Force, with you and your associates. We realize that today is taken up with more of a general problem and we will not take the time from the panel to ask a lot of questions and discuss the matters that we expect to discuss at a later time with the Air Force.

General KUHFELD. Yes, sir.

Mr. POGUE. General, one supplemental very brief point. In discussing the existing rights of the private citizen I take it that the fact that the offending aircraft noise is produced by a Government-operated aircraft exercising a governmental function makes no difference then.

General KUHFELD. I would say it makes no difference. I think under the Tucker Act you have the right to sue the Government just the same as if a private individual were running the airplane.

Mr. SPENCER WILLIAMS. May I comment?

Mr. POGUE. Yes.

Mr. SPENCER WILLIAMS. General Kuhfeld discussed the *Batten* case and of course the committee recognizes that if the *Griggs* case is followed the additional financial involvement on airport operators may be considerable and if the lateral noise problem is also held to be an inverse condemnation this will even further increase the financial commitment of airport owners. General Kuhfeld discussed the *Batten* case and I would like to point out that in a recent decision, *Thornburg* v. *The Port of Portland*, the supreme court of the State of Ore-

gon took issue with the *Batten* case and ruled that lateral noise can constitute an inverse condemnation and therefore hold the owner of the airport liable. I certainly hope that the Supreme Court does take up the *Batten* case so this question may be resolved once and for all.

General KUHFELD. That was Judge Murrah's theory too, that lateral noise could be actionable.

Mr. SPENCER WILLIAMS. Yes. The Oregon court agreed with the dissenting opinion of the *Batten* case, stating that the opinion of the majority was circular in reasoning.

They characterized it by saying that the majority said in effect that there is no taking because the damages are consequential and the damages are consequential because there is no taking, and then they went off and accepted the theory of the dissent in the *Batten* case.

Mr. POGUE. I would like to ask each member of the panel, including myself, to speak as loudly as convenient so that everyone can hear, and as soon as we cover one more question I will ask panel members for supplemental considerations on this general area. Do you have one right now, Mr. Shelley?

Mr. SHELLEY. I just wish to add that the *Thornburg* case which Mr. Williams has mentioned also holds that there may be a taking even though the flight is above the 500-foot ceiling.

Mr. POGUE. The recent and very important *Griggs* case has been mentioned and we all know about it. I would like to ask Mr. Sidney Goldstein if he would comment upon the question of whether that case finally determined the identity of persons who may be liable or are there others who may also be liable in addition to the operator of the airport who was held liable in that case?

Mr. Goldstein?

Mr. GOLDSTEIN. Mr. Pogue, Mr. Chairman, and members of the committee, I was very happy to hear Lyman Tondel's prefatory remarks to the analysis of the theories on which plaintiffs have been suing in connection with these airport noise cases, happy because that gives me the opportunity to recall to this committee, as was outlined to it the other day by Mr. Wiley, the pioneering efforts by our agency, the Port of New York Authority in New York, to anticipate the very situation that confronts us now.

You will recall that Mr. Wiley informed this committee that our activities in this regard go back to 1951 when the commercial jet aircraft now in service were in the design stage. It was then that the port authority board of commissioners, recognizing the potential problem, adopted a regulation that is still in force.

This regulation states that no jet or turboprop aircraft may land or takeoff at an air terminal without permission. The regulation was deemed necessary on the basis of the noise history of military jets, both bombers and fighters. The following year the port authority made a statement which attracted considerable public attention. In September 1952 the chairman of the port authority, looking forward to the jet transports still on the drawing board, said:

> It would be just as useless to design planes that cannot be operated into and out of airports because of excessive noise performance characteristics as it would be to design planes that cannot fly.
>
> Aircraft manufacturers have solved the problems which related to safety, efficiency, and speed of their planes. They must and they will solve these new challenges.

Mr. Chairman, after the committee held its hearing in September of 1959 in the New York area the chairman of the committee wrote me asking me to state the basis of the regulations promulgated by the port authority pursuant to this resolution of the board of commissioners.

I advised the chairman by letter of October 30, 1959, in part; and I quote:

> I have advised our commissioners that the port authority as the operator of New York International Airport has the power to adopt regulations designed to insure that the noise produced by jet-powered aircraft using the airport would prove tolerable to people residing in communities surrounding the airport and not create an unlawful nuisance or otherwise unreasonably annoy or disturb others.
>
> I have further advised them that this power inheres in the very nature of the property ownership and control and unless surrendered by contract is possessed by all owners or operators of real property.
>
> There has been no surrender of this power in the applicable airline leases at the airport.

This was not an assertion on our part of any legislative power. It was a common-law right which inheres to the owner and operator of land. We promulgated a set of regulations which Mr. Wiley described to this committee the other day wherein, among other things, we set up a standard of 112 perceived noise decibels as the permissible noise level, so that an aircraft operating on our airport can plan and conduct its flight so that it won't exceed these noise characteristics in the neighborhood around the airport.

I am very happy to say that generally speaking I think the performance following those regulations has been very, very good. We have had occasion only once to start a lawsuit for violation of these regulations. Happily, the airline was able to prove that it could conform to these and the suit was never prosecuted any further. Now, in connection with these noise regulations I submit to this committee that I would hope that in its deliberations it would consider some of the provisions of bills which have been proposed to the Congress to aid the Federal Aviation Administration in connection with research and development, that it would as well fortify the Federal Aviation Administration, if it doesn't have the power now, though they have been quite cooperative up in the New York area in setting forth regulations designed to avoid this serious noise situation, would strengthen their powers, if it be necessary to do so, so that working cooperatively on the Federal level, at least we could come out with regulations which could be policed and enforced by the Federal Government.

Directing myself to the specific question that arises out of *Griggs*, Mr. Pogue, in my judgment *Griggs* decided a case based on the facts of *Griggs* and came out with a holding that as between certain parties, one was liable where there is a taking.

The CHAIRMAN. That as between whom?

Mr. GOLDSTEIN. Sir, as between the Federal Government and the airport operator, the Supreme Court said that if there be a taking, then it is the airport operator that took in that instance. I think each of these decisions has to be evaluated on the facts that come before the courts in each case. I think we are in the developmental process, if you will, of decisional law in this regard.

I don't think that *Griggs* itself rules out liability for trespass and nuisance. There are many cases pending in principal cities throughout the Nation where counts of the complaints allege trespass and nuisance. These things will develop as the courts take hold of these cases, but I don't think that *Griggs* itself has established that there may not be any such claim.

Mr. POGUE. In other words, it would be in your opinion erroneous to conclude that all future successful claimants will have claims against the airport operator and no one else.

Mr. GOLDSTEIN. I would certainly hope not.

Mr. POGUE. Now, panel members, on item one about the existing rights, are there supplemental points that any one would like to mention? Mr. Hill?

Mr. HILL. Mr. Pogue and Mr. Chairman, at one time I was in full agreement with Mr. Tondel's point of view that the remedy of an action for just compensation for an inverse condemnation was proving to be the most effective of the three remedies, but recently I began to change my mind.

The *Batten* case was the primary thing which cause me to think about this again. As General Kuhfeld points out, the 10th circuit in the *Batten* case said that only a resident who was directly overflown, whose column of air space was invaded, could have a cause of action for just compensation for an inverse condemnation.

Now, this is not all the total sum of all people who are complaining about noise. One who lives laterally to the line of flight can complain just as loudly and be damaged just as much. Generally as the lateral distance increases the noise attenuates, but the noise pattern of a 707 covers a wide area on the ground in addition to the homes of the people whose column of airspace is invaded.

If that case is not reversed by the Supreme Court or is left standing because the court refused to review it, it is going to largely nullify the value of this remedy to a great many people. Then, in addition lawyers have begun to think of other defenses of the cause of action for just compensation for a taking. In the military cases which are defended by the Department of Justice that are brought by residents around Air Force bases the Justice Department claims that it makes a great deal of difference whether the house was there first, or whether the runway was there first.

If an airport is built in an uninhabited area and planes begin to fiy there, the Justice Department says, "Yes, we may have taken an easement," but it is just over somebody's farm and if later on a house is built and this man sues for just compensation, the Justice Department would say, "Well, it doesn't make any difference how much your home has depreciated in value by this flying. We are just obligated to pay for the value of that airspace at the time we took it, and at that time it wasn't worth much."

And it also makes a difference, even if the house was there first, whether the present owner was there first. Perhaps the house was there before the runway, but after that the owner sold it to somebody else who bought it after the runway was there, and the Justice De-

partment would say to the present owner, "Well, you don't have a claim. You bought a home that was already encumbered by an easement in your airspace, and maybe the former owner had a claim for the taking of an easement, but when you bought the land, you didn't buy his claim against the airport."

And in the Government cases that would be buttressed by reference to the anti-assignment act, so all of these things, especially if *Batten* isn't reversed, lead me to think that if that occurs we would see a trend against actions for just compensation and reversion to an action in tort for damages.

There would be advantages to that. The extent of recovery might be greater. A person who seeks just compensation can only sue for the diminution in the fair market value of this property. In an action for damages one can recover other things.

If his wife became ill and had to go to the hospital he can include that. If he has a poultry farm and the hens won't lay eggs, he can include that. Furthermore, it isn't limited to an action against the airport. He could perhaps sue the carriers also since they are the persons causing him his damage. So although I largely agree with Mr. Tondel about the advantages of the action for a "taking," I don't think that it is necessarily going to continue to be the best remedy.

Mr. POGUE. Mr. Hill, you prompt me to ask a hypothetical question which may be quite important.

As you see this line of legal evolvement, suppose a house is built adjacent to an airport during a time of the piston-type aircraft and it is not a taking. Suppose, however, that in the advent of the jet operations that same runway is to be used for jet operations but the municipality passes a zoning law saying that residential properties shall not be built or used in certain areas, including this one. Then he sells his property. Is the purchaser bound by the zoning laws? What I am getting at is if that is possible as a legal theory, during the passage of time we may have something of a solution with proper zoning.

Would you care to comment on that?

Mr. HILL. Well, I hate to give an off-the-cuff opinion to a hard question like that but I would say that generally zoning ordinances are not retroactive. The residences that are already there would have the right to continue to be there.

Mr. POGUE. And the purchaser would not be bound by the zoning law even though he knew it was on the books?

Mr. HILL. I would think so.

Mr. STICKEL. It seems to me that we haven't realized in zoning that while it is an exercise of police power and is in general use throughout the country, it is only constitutional by reason of the fact that you have this nonconforming use provision in the enabling legislature which permits the continuation of a nonconforming use.

It is true that in recent years there has been some whittling away at that doctrine and there has been some talk of amortization of a nonconforming use over the economic life of the property, but we have to always remember, as Mr. Hill has said, that zoning is prospec-

tive and not retroactive and it applies to the property and not to the individual who may be occupying the property.

General KUHFELD. In connection with Mr. Hill's statement about what comes first, the chicken or the egg, the house or the airport, I think I should mention this very problem, and I think if you take away the zoning part of your question it was pretty near what you were asking about in the *Highland Park* case. It is reported in 161 Federal Supplement 597.

In this case, and I think that it gets into the problem of the anti-assignment act and so forth, because all that was discussed by the court in the *Highland Park* case, the plaintiff had acquired his land near Hunter Field in 1950, and this was subsequent to the activation of the base for propeller-driven aircraft. In 1953 the Air Force put B–47 jets on that particular base. One of the defenses was the anti-assignment act, because, the individual who owned the land purchased it from somebody and he had purchased it from somebody who built his house after the airport was built.

Now, the Court of Claims in that case said that the antiassignment act wasn't applicable even though the property had been acquired after activation of the air base and then the court concluded that conventional aircraft didn't substantially interfere with the use and enjoyment of the property. Then getting into your statute of limitations, the court said that the taking occurred upon the arrival of the first jet bomber, and that was after the plaintiff acquired his property, and therefore it permitted recovery in that case.

Mr. HILL. That was present in the *Griggs* case. By the time the *Griggs* case was over Griggs had sold his house, but they didn't have a substitution of plaintiffs there. Although Griggs had moved someplace else he claimed he still had his claim and he continued to be the plaintiff.

Mr. POGUE. Mr. Shelley.

Mr. SHELLEY. Getting back to the *Griggs* case, I would like to point out that that case was bought by the owners on the theory the property was taken at the time the board adopted a resolution opening the runway to traffic. The theory was not that it was taken by overflights, but that it was taken by opening a runway, and the Supreme Court in the closing lines of the decision pointed out—

> Without the approach areas the airport is indeed not operable. Respondent decided it had to acquire such private property. Our conclusion is that it did not acquire enough.

I would be the last man to press particular language in any court decision, least of all the *Griggs* case, and I believe every man on the panel believes that the *Griggs* case will be modified in some respects and to some extent, although none of us perhaps can guess how, but we can gamble that it will be.

However, I do want to point out that there is a distinct possibility that this may hold that whatever taking there may be in connection with existing airports has already taken place.

Mr. POGUE. Do any other panel members wish to supplement?

Mr. Stephen?

Mr. STEPHEN. I would like to add something to what Mr. Shelley has said. He is entirely correct I think in his reference to the closing language of Justice Douglas' opinion. Likewise General Kuhfeld's

remarks regarding the Court of Claims case on Hunter Air Force Base, Ga., as he mentioned, fits Mr. Pogue's initial question except for the interjection of the zoning limit in the hypothetical question. I think something that is present in all of these cases that was not present in the *Griggs* case, I guess, except to the extent this runway question might have determined the answer, is the fact that the application of the statute of limitations is frequently the determining factor on wheher or not the plaintiff is going to have a recovery or not, and in turn the answer to whether the statute of limitations has barred the cause of action turns on the event which constituted the taking.

Now, there are a number of cases which Mr. Tondel, I am sure, is familiar with on the west coast, I know, which involve a question of whether or not propeller-driven aircraft, which of course were the first aircraft to be operated off an airport, either a civil or a military airport, did in fact, impinge on the enjoyment of the property sufficiently to constitute a taking.

In those cases where it was held that operation of the propeller aircraft did not constitute a taking, the self-same Court has then held that the subsequent operation of jets did constitute a taking.

The *Griggs* decision was based on the concept of a taking as opposed to trespass or nuisance, as Mr. Goldstein has pointed out. If and when this modification takes place in the *Griggs* decision it may well take the form of the Court going off on one of these other doctrines which Mr. Tondel has described in trespass and nuisance rather than the taking, so, admittedly, the *Griggs* decision by the Supreme Court of the United States did not answer the question whether there might be joint liability or even separate liability as to other parties than the airport operator in the case of some other kind of legal liability than a taking, but the question which Mr. Pogue put regarding the applicability of zoning I think is not fully answered by Mr. Stickel's remarks to the effect that zoning is purely prospective.

Admittedly, zoning is prospective, but at the same time you can't look at zoning alone. You must consider the application of the statute of limitations, and despite the holding of the Court of Claims in the *Highland Park* case, you must also consider the fact that in a great many instances what will actually happen is that you have zoning covering a prospective application and you have the statute of limitations protecting as against any past claims, because of the simple fact that the homeowners are involved, having built their homes since the airport was put into operation, and every year that passes now it is more and more likely that the statute of limitations will take care of any past questions of the kind Mr. Stickel was saying are not covered by zoning application.

Mr. POGUE. Other comments before we pass to phase 2?

Mr. Snow?

Mr. SNOW. I would like to comment on this and also on something that Mr. Goldstein said earlier. I can understand his feeling that perhaps greater Federal authority to regulate this matter was one of the best answers. I am not sure that that is a very good solution for several reasons. There are a good many thousand airports in this country and this problem that we are discussing is limited to a very few of them as a practical matter. That is No. 1. And any

Federal standard almost has to cover the whole area which isn't involved in this.

Second, the problem is an extremely variable one. I think it differs at every airport. It doesn't admit to my mind of a single regulatory solution. And, third, it is an extremely personal one, I find, with the people that are aggrieved.

They want something done and they go to the local people. They go to the local authorities, the local politicians, regardless of what the Federal Government does, and I think the Federal Government is too remote from the problem properly to take care of this part of it. I would also like to second what was said about zoning of various sorts.

It is not normally retroactive, but changes are constantly taking place in the areas surrounding an airport and I certainly think it is worth while to take into account what you can in the future.

Mr. POGUE. Mr. Christopher.

Mr. CHRISTOPHER. Mr. Chairman, I am inclined to think that the *Griggs* case will be read more broadly, and indeed should be read more broadly, than perhaps some of the other gentlemen on the panel. My feeling in analyzing *Griggs* is that *Griggs* was a premeditated and deliberate attempt by the Supreme Court to provide some guidelines for the future in this area. It certainly doesn't write the entire book, but I think that any feeling that there isn't a great deal in this decision to guide the future would be a mistake. It seems to me the Court was confronted with various alternatives and faced by those alternatives chose to impose liability on the airport operator. It seems to me the language of the decision makes it fairly clear that the airport operator is going to be held responsible in the future for providing the necessary air easements in the corridors which are used for landing and takeoffs.

The language of the Court in that regard seems to be fairly clear. The Court says:

> We see no difference between the airport's responsibility for the air easements necessary for the operation of the airport and its responsibility for the land on which the airport was built.

In the only post-*Griggs* decision that I know of in California the superior court in San Diego County held in a nuisance case that the airlines were not proper parties and that the city should have been made the party defendant in that case, following what seems to be the implication of *Griggs*, so I just would say in adding my own footnote here that it seems to me that *Griggs* will be read somewhat more broadly than other gentleman here have indicated.

Mr. POGUE. Mr. Tondel.

Mr. TONDEL. Just one word in connection with the effect of *Griggs*. I had a check made to try to find out how many new cases had actually been started since the *Griggs* decision and so far as I know there have been only six in the country.

There was a group of cases in Atlanta that was well underway before the *Griggs* decision and the complaints were filed after, but I don't think they can really be counted.

However, there have been only six other cases since *Griggs*.

Mr. ROGERS of Texas. May I ask a question, Mr. Chairman?

The CHAIRMAN. Yes.

Mr. ROGERS of Texas. Who are the defendants in those cases? Did they sue the municipal corporations?

Mr. TONDEL. Yes. Referring to the six, four were against the city or county that operated the airport. The other two were against the city or county and in addition the airlines were brought in.

Mr. POGUE. Mr. Shelley.

Mr. SHELLEY. In this connection and in line with your question, Mr. Congressman, I have here some figures which I obtained from AOC which I am told may not be entirely accurate and up to date, but, nevertheless, may be of interest, and they are incomplete.

However, these figures show that at Atlanta there are 73 suits pending. The amount aggregates $5 million. It is true that in most of these cases I am going to mention the suits were initiated prior to the *Griggs* decision, but, nevertheless, they will be decided in the light of it. At Dallas there are 30 suits pending; at Memphis 20 suits aggregating $2 million.

At New Orleans, curiously enough, I think there is a suit against the FAA—am I correct—involving a number of complaints.

Oh, that is a proceeding before the FAA.

In New York, Mr. Goldstein, and, check me on this, you have a suit involving some 808 plaintiffs and aggregating somewhere around $5 million.

Mr. GOLDSTEIN. That is a suit that is pending against 39 airlines and the Port of New York Authority.

Mr. SHELLEY. At Seattle, 200 suits pending totaling $1 million. In Los Angeles, I understand there are 38 claims which have not yet reached the stage of suit, totaling over a million dollars. The little airport of Ontario, Calif., there are 14 claims, San Francisco 59.

I have given you the ones that have the largest numbers of plaintiffs. There are also suits, one or more of them, at Denver, Houston, Jackson, Oklahoma City, which aggregates over half a million dollars, Phoenix, Omaha, Portland, San Antonio, Spokane, Tampa, suits there aggregate over a million dollars, and there are suits threatened at Dayton and Nashville.

As I say, that is the best available information we have at the moment and I am afraid it is given you, as the stockbrokers say, from sources we deem reliable but which are not guaranteed by us, but the total suits seem to run at the moment, now pending, over a thousand suits involving 19 airports, and that ignores cases where suits are threatened and not being brought.

Mr. POGUE. Mr. Goldstein.

Mr. GOLDSTEIN. With this awful recitation of these suits with the damages sought, and I submit each will have to be decided on the facts of those cases, nevertheless I hope that this committee will take into consideration the possible effect on the municipalities of this Nation. If those suits go to judgment we are involved with tremendous sums of money here and we may need some help.

The CHAIRMAN. Mr. Goldstein, there is nothing the Congress can do about these claims that have already accrued and call for damages, is there?

Mr. GOLDSTEIN. Well, sir, I think the Federal Airport Aid Act was designed in part to supply a contribution of funds for the acquisition of the property rights.

The CHAIRMAN. Even so, as I read the *Causby* case, that was decided on an interpretation of the fifth amendment, was it not?

General KUHFELD. Wrongful taking; yes, sir.

The CHAIRMAN. The Congress couldn't do anything about that kind of action if such has already accrued.

Mr. POGUE. Mr. Chairman, perhaps this question would verify it. Mr. Hill, regardless of the status of existing litigation or of other litigation that may come, is it or is it not a fact that in the Federal airport aid program some portion of the funds made available by the Federal Government may be used for other than the erection of the actual airport itself? In other words, the acquisition of air rights.

Mr. HILL. There is a difference of opinion in the Agency whether the present act would authorize us to contribute to the acquisition of pure noise-abatement easements. At the present time, we don't do it and we don't think we should do it and we do not intend to ask the Congress for authority to do it.

We do intend to ask the Congress to strengthen the act to authorize us to require zoning by the municipality, but we do not intend to ask the Congress for authority to pay for 50 percent of the cost of acquiring easements or paying damage claims.

Mr. POGUE. Mr. Shelley.

Mr. SHELLEY. With your permission, Mr. Chairman, I would like to address myself to your question and to briefly summarize the situation of the typical airport operator and what he hopes and trusts your committee will do about it.

I should start by saying initially that when I speak of the typical airport operator, unfortunately, I am not speaking of the large traffic-generating centers such as Miami, New York, Chicago, Los Angeles, although what I say may apply to them, but I am really trying to describe what we call medium or small operators.

The position he finds himself in today is very simply this: he has gone, as he thought from his standpoint, into partnership with the Federal Government to build and operate an airport which forms part of a national airport system, which Congress thought of such importance from the national standpoint as to adopt the Federal Airport Act to make provision for subsidies to airport operators and to provide for an administrative procedure to determine what airports should or should not be within that plan. Your typical municipality went into it in light of the provisions which now appear in the Federal Aviation Act but which appeared in prior acts, which said that a right of transit existed. The language did not say that one would be created. It did not say the airport operator was authorized to create it. It said it existed.

Today as a result of the *Griggs* case your typical airport operator finds himself faced with the possibility of judgments which from his standpoint are simply enormous because it permits aircraft to fly in and out of his airport in accordance with rules and regulations of the Federal Aviation Agency and the CAB—in accordance with all Federal rules and regulations.

The airport operator innocently thought that he had a right-of-way established by the Federal Government. He now finds the Supreme Court says, "Oh, no, there is no such right-of-way at all. You have to acquire it."

He signed a contract with the Federal Government in the form of a sponsorship agreement which forbids him from keeping aircraft out, except from the standpoint of safety at the airport, and, he would like to know if the Federal Aviation Agency interprets that to forbid the airport operator to forbid aircraft to come in because they are noisy or to specify the routes they can fly coming in and out. If the Federal Government wants the airport operator to do it, he would be glad to get that opinion and himself regulate flights in and out. I said he would be glad. Frankly he wouldn't. Frankly, he doesn't think it is a solution for him to regulate traffic going in and out of the airport.

The point I make is that if he wanted to he apparently couldn't do it under the Federal sponsorship agreement. Then in many cases, and the fact is in most cases, your airline operator has contracts with airlines. Those say what rules and regulations the airport operator can enforce as against the airline parties to these agreements.

These agreements are by no means uniform and the provisions regarding regulations are by no means uniform, but in many instances it is at least arguable that he has no right under his contract with the airline to keep out any aircraft the airline cares to fly in. There are some of the airport operators, particularly in the big traffic-generating centers, who have been able to negotiate leases or use agreements which have formulas under which rates can be adjusted to meet your actual costs. In cases where judgments are recovered against the airport operator, some people are inclined to assume that he has an ability to pass those costs on to the airline, that in the average case it doesn't make any difference what the airport operator pays, that it doesn't hurt the local taxpayers, the local residents, the local voters, because it will be passed on to the airlines and the airlines can pass it on to the passenger if they can get a rate increase.

That is not the situation. The average typical airport operator has a contract that has anywhere from 3 to 20 years yet to run with rates fixed and if he runs into unexpected expense all he can do is go hat in hand to the airlines and say, "Gentlemen, I know perfectly well you don't have to do this, but will you help me out?"

And let me say in all fairness to the scheduled airlines, I have sat in cases like that when the airlines did help the airport operator out, but there is no assurance in any particular case they will do it.

Now, that is the situation of the airport operator and in this connection I must say that there are some people in the airport business who, like myself, believe very firmly in the proposition that we do have a national airport system which is a system in every sense of the word.

You couldn't operate O'Hare Field at Chicago if it was the only airport in the country. To operate any one airport you must have at least one other airport and at least one airline operating between them. Actually, and I think it was what Congress had in mind when they adopted the Federal Airport Act, we have a system here, an aviation system, that consists of both airports and airlines, and what they may spend at Omaha for air rights to let aircraft in and out of Omaha benefits every other airport where aircraft fly to and from Omaha, and it also benefits every airline that flies in and out of Omaha

and also those who pick up traffic from points where those airlines discharge. We have a system and a national system.

Now, I say all that because a lot of the airport operators today are asking themselves and each other, "If Congress didn't mean that a right-of-way exists what did it mean?" That is not precisely the way they phrase the question, but that is their question.

Their feeling quite frankly is this, and various municipalities face it. They have situations where they can't pass costs on. At many of these medium and small places the airlines themselves are frank to say they don't think that they can or should pay the out-of-pocket costs today, regardless of these added costs that we are talking about, and I can't say officially, of course, that is all wrong, but there is a certain logic in the attitude of the airlines that say, "This particular airport doesn't generate too much traffic and sooner or later there is a limit to the rate I can pay them."

You have these costs and they face the man in city hall, and he is a realistic character in this picture, a very real character with a problem. You find many airports that serve areas outside of the political subdivisions which own and operate them. You get down to general aviation airports, and I think they are in this picture too, and you have plenty of them in Long Island where planes are based, but the owners live in New York City. You go, for example, to Ohio and you get to Dayton and Columbus which serve areas way outside of the city limits. You go to Cincinnati, which is my favorite illustration, and the Greater Cincinnati Airport is located in Boone County, Ky., but it is owned and operated by the Airport Board of Kenton County, Ky., and the area it serves primarily is the city of Cincinnati, Ohio.

You get these cases of municipal airports serving areas much greater than their own municipality and you raise a very serious question as to how long it is going to be politically possible to subsidize those airports out of local real estate taxes at the expense of schools, hospitals, sewers, and other local improvements, improvements that are truly local and not national. I said I would be brief. I was not. I apologize, but with that background I would say that it is the attitude of the Airport Operators Council, and in this case I am expressing the council's official position, that the Federal Government should realize that they have trapped municipalities through the wording in the statute, not intentionally, Lord knows not intentionally, but as a result of the *Griggs* case that is what has happened. We feel the Federal Government should recognize its responsibility to provide the rights-of-way through which aircraft come to and from airports just as in the Rivers and Harbors Act Congress recognizes the national importance of the channels that take the steamships up to the piers and wharves and just as there is a growing, and to my mind very desirable, belief on the part of Congress that your highway systems, your major highways, are fundamentally national in character and not local, and it is the obligation of the Federal Government to support a national highway system as distinguished from local highways.

Now, from the standpoint of the airport operator, the municipality, which is not, as I have said, necessarily a metropolis, like Chicago or San Francisco, the amounts we are talking about here are huge and my friend Mr. Goldstein properly characterized them this way from his standpoint as an airport operator, but from the standpoint of the

Federal Government and the national budget you gentlemen know better than even I do the amounts involved here to assure a sound, workable airport system, as part of a sound, workable national aviation system, are very, very small compared with other Federal expenditures.

We, therefore, have spent a very great time in AOC drafting a bill, and with your permission I will arrange to have copies sent to members of the panel and to members of this committee, a bill which has not yet been introduced, but which would recognize the Federal responsibility, the fact that Congress intended to create a right-of-way here even though the Supreme Court said it didn't, and which would assume the liability for all takings of this sort.

The only other alternate I can see would be to say we will vest in the airports the power to regulate traffic going in and out. Believe me if you want a national aviation system, with all due respect to my friend from Boston, I don't think that is sound from the national standpoint.

Incidentally, while I am speaking of legislation, we also have a bill of the type Mr. Goldstein mentioned which would vest in the Federal Aviation Agency, along with its powers to regulate traffic from the safety standpoint, power to regulate it from the noise standpoint, so there could be no question as to the FAA's power in that field.

Lastly, I will add my own little bit, and this is not an AOC sponsored bit of legislation I am going to mention now, but one I would like to toss on the table for the consideration of your committee. We are going to look forward to supersonic aircraft.

Your engineers and operators can tell you when, but we all know they are coming and not in the far distant future. One thing that I think every airport operator in this country dreads is appreciation by the man in the street as to what a sonic boom is without the slightest appreciation that you can get aircraft in and out of an airport without having a sonic boom any place around. The popular impression is likely to be supersonic aircraft are going to knock down houses.

I feel it would be very helpful to the country, to the airport operators, and to the airlines if there were a Federal statute penalizing flying aircraft at supersonic speeds below a level which I am sure engineers can give you. I think John Wiley could take it out of his hat. I don't know it, but there is a level below which they shouldn't be flown. With such a statute, when the complaints begin to arise that you shouldn't have supersonics flying in and out of your airports, you can say to the neighbors: "Don't worry. There is a Federal statute that says they can't fly at supersonic speeds below this level and that is so high up you don't have to worry."

I don't think that statute would be objectionable from anybody's standpoint. I think it would be helpful from the public relations standpoint. But that is a personal suggestion, not an AOC suggestion.

General KUHFELD. I might be able to throw a little light on the amount of money involved in this situation. Back in 1956 we were having from the standpoint of the Air Force a considerable number of claims on this Causby theory and at that time the Lands Division, Department of Justice, suggested that we should make a study, to try to get afield of what it would cost to get abrogation easements that would eliminate these kinds of suits.

We made a study, as I recall back in 1956, and I might say that we have a lot more airfields now than we had in 1956 with the SAC dispersal program, and we found then that if we were going to take abrogation easements to a distance of 6 miles from the airbase, from the strip, this would cost us in the neighborhood of $7 billion, and of course, you have the problem now is it 6 miles, 7 miles, 10 miles, 15 miles, how far out do you have to go with an abrogation easement to solve the problem. So, it is an expensive situation we are talking about.

Mr. POGUE. You are talking about military fields?

General KUHFELD. I am talking about just military fields that we were concerned with at that time.

Mr. POGUE. I would like to turn in as short as possible time to the second phase of this matter which is what can we do in the future about undertaking to prevent a mounting development of this type of claim, so that additional panel members who have comments to make about existing rights I hope will be as brief as they can be and then we will come back to this after we deal with that.

Mr. STEPHEN. Regarding Congressman Rogers' question as to who are defendants in the litigation now pending I had the impression from the listing read off by Mr. Shelley that it was at least implied that the airport authority or the local Government was the defendant in most of those cases.

Mr. Shelley did make a passing reference to the New Orleans case as being against the FAA. I think it ought to be clear for the record that that case—I assume we are talking about the same one—is actually pending here in the District of Columbia Circuit, and is not against the Federal Government for damages, but rather is based on a claim that the FAA now has the statutory authority to close down the New Orleans Airport, and that was the relief sought, as: viz, to close down all flights into the airport.

Mr. SHELLEY. Mr. Stephen is correct. I looked hastily at my notes and saw FAA in there and misspoke myself. Mr. Stephen has correctly described the New Orleans case.

Mr. ROGERS of Texas. May I ask one question of Mr. Stephen?

Mr. POGUE. Surely.

Mr. ROGERS of Texas. Mr. Stephen, in regard to the claim that FAA does have the power to stop all flights into that airport now, are they basing that on the jurisdiction of the FAA with regard to safety requirements?

Mr. STEPHEN. The petitioners are basing it on air traffic control, yes, sir, the authority over air traffic—section 307(c) of the act.

Mr. ROGERS of Texas. But they make no reference to safety or delineate safety as the reason for the jurisdiction?

Mr. STEPHEN. Section 307(c) of the act regarding "protecting persons on the ground, the theory being that the protection of persons on the ground comprehends protection against noise.

Mr. ROGERS of Texas. Thank you.

Mr. HEMPHILL. Let me ask you a question.

Could the owners of the New Orleans Airport stop the traffic?

Mr. STEPHEN. New Orleans Airport Authority?

Mr. HEMPHILL. That is right.

Mr. STEPHEN. That, I believe, is the question involved in New York's litigation, referred to by Mr. Goldstein, against Delta Air Lines and it never was decided. I wouldn't attempt to give an off-the-cuff—or as one of Mr. Rogers' Texas friends used to say, an "off-the-spur" of the cuff—opinion.

Mr. POGUE. I think, Mr. Congressman, that is a very good question and we should attempt to answer it the best we can.

Can the airport stop the traffic coming in because of this problem, or can it, once in, stop it from taking off? What member of the panel is willing to express a view on that?

Mr. GOLDSTEIN. Mr. Pogue, as I advised the committee here a short time ago and as I wrote to the committee in 1959, we think, or I think, that as an airport operator we have the power to issue a regulation as a landlord which has for its purpose, the prevention of a nuisance at the airport, and we have that regulation on our books and we will enforce it whenever the violation occurs.

Mr. COLLIER. May I ask a question at that point?

Would that not then be in conflict with the existing Federal Act?

Mr. GOLDSTEIN. I think not. Of course our regulation is directed to takeoffs. Landing is another problem. That is entirely within the domain I think of the Federal Aviation Agency.

Mr. ROGERS of Texas. Would the gentleman yield?

Mr. COLLIER. Yes.

Mr. ROGERS of Texas. Mr. Goldstein, aren't you making a very dangerous statement from the standpoint that if you do have the power, all that needs to be determined is that this is a nuisance and then you are liable for it?

Mr. GOLDSTEIN. Well, sir, as I tried to advise the committee before, we took these measures as a preventive measure in the light of our knowledge of the time and what consequences could ensue.

If these aircraft performed so they were not tolerable to the neighbors of the airport, I still think that the owner of property has an inherent right to so compel the occupant to conduct the operation so that it shouldn't be an unlawful nuisance.

Mr. SHELLEY. Mr. Moderator, may I suggest that the answer to the question of what the airport operator can do may well depend on the language of the contracts the airport operator has made with the airlines, and nobody can answer that without reading the contracts.

Any airport operator's attorney could tell you the situation at his airport, but to generalize is impossible. I might add, as I have before, that you do have two questions on which we might have opinions, but you won't know the answers until the courts decide it.

One is the question as to whether the Federal Government has preempted the field, and the other is the question of the effect of the sponsorship agreements, and it certainly rests with Congress or FAA to give the answer to that one.

Mr. GOLDSTEIN. May I just clarify one answer?

Mr. POGUE. Yes.

Mr. GOLDSTEIN. Congressman Collier and Congressman Rogers, I don't want to mislead you into thinking that I assert that this power entitles us to interfere with air traffic. That is absolutely in the domain of the Federal Aviation Agency.

We would never attempt to do that.

Mr. POGUE. I would like to state what I think to be a crucial question here, and I would ask Mr. Hill to comment on it, so he can listen to my statement.

In most of these airports that we are concerned with, I believe it is true that large Federal sums have been invested along with the sponsor's funds. I assume that the Federal Government, along with the sponsor, had worked out a system of runways.

I assume that by the time the airport plans are finalized and the airport built, they know which will be the instrument runways and which will not, and I assume that after the airport is built and the jet aircraft, or whatever they may be, are using the airport, they would be required to use the aids to navigation and the approaches that the Federal Government has established following the building of the airport or the improvement of it or whatever may be involved.

In light of the Federal law that has been referred to about the right-of-way in airspace and which is well established in the Federal Aviation Act, Mr. Hill, the question is, in summary form, something like this:

Is it your view that the Federal Government has control of the way the aircraft come in and go out? I am assuming now complaints from people below. Could the airport stop traffic on the airport once it gets down?

Alternatively, is there some measure of responsibility that you can take for shifting the instrument approaches if it is found by the airport operator that another approach would be less objectionable?

Mr. HILL. Generally, the line of demarcation is that the Federal Government has control of the navigable airspace and regulates it. The community that owns the airport regulates it. It controls traffic on the ground.

The Federal Government cannot compel a city to have an airport if it doesn't want one. If a city decides it wants to shut down its airport all night the city has the right to do that.

What the Federal Government does is regulate the planes in the air. There is a provision in the Federal Aviation Act that says that the Agency can enact air traffic rules for a number of purposes, one of which is for the protection of persons and property on the ground.

It is that section that our noise abatement departure regulations are based on. When a plane is in the air, our controller will tell it what turns to make to avoid heavily built-up areas, but whether jets land at all or not at an airport or whether they take off at night or not is up to the municipality.

I believe, Mr. Goldstein, that you prohibit jets from landing or taking off at La Guardia, don't you, and Newark?

Mr. GOLDSTEIN. I mentioned the general regulation.

Mr. Hill, as you go forward, though, you made a statement that the airport operator controls the traffic on the ground. I don't think you meant that.

Mr. HILL. No. We have a ground controller that tells the airplanes what taxiways to use. What I meant to say was you govern whether you are going to let jets use your airports and what hours you are going to let them use them. It is up to an airport.

It could prohibit, for example, any takeoffs if it wanted to, but as the committee will recall, the representative of the port authority

who was here on Tuesday had some charts with him and he showed the terrible economic effects which would result if both Idlewild and London shut down between 10 at night and 7 in the morning.

For that reason, most municipalities don't want to do it. We take the position that that is up to the city. It is their airport. They are entitled to decide whether they want to use it or not. It is their surrounding residents who are complaining about it.

It is really primarily a local problem as to what hours they want to use their airport and what kind of airplanes they want to let into it, and this was essentially the question we had in this suit with the people at New Orleans, which is now pending in the District of Columbia circuit.

We have a noise abatement departure regulation there. The city has its airport. It has its runways. We have a regulation telling the planes how they must climb out and how these must land to best minimize noise, but the surrounding residents weren't satisfied with that.

They wanted us to shut down their airport at night. We refused to enact such a regulation. We said that is up to the city, so they are bringing an action to compel us to adopt such a rule which is now pending.

Mr. COLLIER. Mr. Hill, you say the authority of the Government, the Federal Aviation Agency, is to regulate the aircraft in the air. Then how can you possibly reconcile this with the Griggs situation which places the responsibility for the conduct of the craft in the air upon the airport?

Mr. HILL. This was a defense which the losing parties made in *Griggs* and which the court did not accept. The court mentioned that the Federal Aviation Agency operates the control tower, and assists the planes in landing and taking off, but pointed out that it was the municipality that built the airport and laid out the runways.

The FAA merely assists the planes when they are in the air. There is not really much assisting we can do. We can't compel a plane to come down where there isn't a runway on which to land or in a way which is beyond the physical capabilities of the aircraft.

Really, the basic thing a controller does is to tell the pilot which runway he ought to land on in view of prevailing wind conditions. The Supreme Court held, really, that the municipality had gone into business. They had acquired the land on which the runways are located in order to go into business, but they hadn't acquired all the property interests they really need because an airport consists not only of an area on the ground, but also a larger mushroom of airspace. This is what the Pittsburgh Airport people failed to do; they simply didn't acquire all the interests in property which they needed in order to go into the airport business.

They just can't have planes fly through other people's airspace and use it without compensating them for it. It is their obligation to do that. That was the effect of the decision.

Mr. POGUE. Mr. Christopher.

Mr. CHRISTOPHER. I have a very brief point.

It seems to me that Mr. Hill's statement with regard to the ability of an airport to refuse to have service at night or refuse to have jet service at all overlooks the obligations under the act of a carrier to

render safe and adequate service. This is an obligation which is spelled out in the certificate of each of the air carriers and it has been interpreted by the CAB to require air carriers to provide a specific service to given cities.

Indeed in the *Fort Worth* case, the CAB expressly ordered that jet service be provided for the city of Fort Worth, so I just want to say, briefly, that it seems to me that Mr. Hill's comments, with regard to the power of an airport operator or a city, overlooks the obligation of the carriers under the act and under the administrative rulings to render safe and adequate service.

Mr. POGUE. Mr. Shelley was next.

Mr. SHELLEY. May I address a question to Mr. Hill?

Mr. POGUE. Address it to me and we will see.

Mr. SHELLEY. I am reading from the sponsorship agreement which every airport operator has been required to sign to obtain the Federal aid. The word "sponsor" of course refers to the airport operator.

> The sponsor specifically agrees that it will keep the airport open to all types, kinds, and classes of aeronautical use without discrimination between such types, kinds, and classes—

I repeat, all types, kinds, and classes—

> Provided that the sponsor may establish such fair, equal, and not unjustly discriminatory conditions to be met by all users of the airport as may be necessary for the safe and efficient operation of the airport;
>
> And provided further the sponsor may prohibit or limit any given type, kind, or class of aeronautical use of the airport if such action is necessary for the safe operation of the airport or necessary to serve the civil aviation needs of the public.

My questions are two: First, in light of the fact the airport operator has contracted away its power, except to the extent necessary for the safe operation of the airport (and that raises a question whether noise interfering with property outside the airport affects the safe operation of the airport), or necessary to serve the civil aviation needs of the public (and that to my mind has always referred to aviation service, airline service), whether in light of that an airport operator can bar jets because of noise, and, secondly, if the answer to that is "Yes," is it possible to get an official FAA ruling to that effect?

Frankly, gentlemen, I am speaking here from a practical, realistic standpoint. It isn't a question of what somebody's opinion is what it means.

It is a question of what we actually contracted with the Federal Government to do.

Mr. HILL. In the places where jets have been barred just as La Guardia and Newark, the port authority had another airport where they could land, so there was no injury to the public there.

If a city which had no alternate airport decided to bar jets just because they didn't like jets and there was no safety reason or any other valid reason to do it, then, of course, we have a much more serious problem. In that case the city might reasonably claim that it had still satisfied all of the aviation needs of the public because they can get in and out on propeller craft. We have never had a situation like that. I don't think the Agency has an opinion on it. I just don't think I could give you an off-the-cuff definite answer on that.

Mr. SHELLEY. On that basis I would suggest that the committee realize what the FAA has said, that it is not sure whether or not airport operators can bar jets. I beg your pardon, Mr. Hill.

Mr. FRIEDEL. The FAA has jurisdiction over the Washington National and Chantilly. They do not permit jets to land at Washington National. I understand the New York Port Authority does not allow jets to land at La Guardia.

Mr. SHELLEY. Mr. Chairman, the result of this proposition is the Federal Government might have a perfect right to say to an airport operator, "You must let jets in," but for reasons existing at the time they might well say, "Well, we are not going to enforce it."

My question is as to the legal obligation.

Mr. FRIEDEL. I just mentioned that they have jurisdiction over two airports themselves and they do not permit jets to land at Washington National, so I figured that pertained to any airfield in the country and if the airport operator did not want jets to land, the FAA would not make them land there.

Mr. SHELLEY. Mr. Congressman, if that point could be clarified by legislation we would be very happy to have legislation.

Mr. POGUE. I think Mr. Hill ought to comment on that because I assume the difference you speak of is based on safety considerations.

Mr. HEMPHILL. Will the gentleman yield before he comments? I would like an expression of opinion as to whether or not the Congress has either the right or the duty under the Constitution to define the authority of the local owner of the land, and has the right to define the authority of the FAA, and does Congress have the right to define the differences of authority?

Mr. HILL. It would have the right to do so at those airports that get a grant-in-aid agreement because we could attach any conditions to that we wanted to.

Now, the question of whether it would be wise for Congress to enact a law compelling people to have jet aircraft that they didn't want to have is quite another question.

Mr. HEMPHILL. That is not the question. The question is can we define where the Federal authority stops and the local authority starts and vice versa. Does Congress have that right under the Constitution?

Mr. HILL. I would say if the airport does not have a Federal grant-in-aid agreement it should be its own business as to whether it wants to have an airport or if it does, what kind of planes it wants to permit to land there. I don't know whether I would go so far as to say that such a law taking that authority away from them would be unconstitutional, but I think it would greatly offend traditional concepts of Federal-State relationships.

Mr. YOUNGER. Before we pass that, are you saying that anytime we have a Federal grant-in-aid the Federal Government has the right to control?

Mr. HILL. No. The question was would Congress have the authority to amend the act to give the Government the right to control. At the present time, under the act I have a great deal of doubt with the proposition that just because an airport receives Federal aid we can require it to take jets that they don't want to have.

It is true that they agree not to discriminate between people, but if they let airlines come in with piston aircraft, I am not sure they are discriminating against anybody.

Mr. YOUNGER. Let us go a little further. As I understand your testimony, if you have a Federal grant-in-aid of any kind, then the Federal Government in granting that aid can put in requirements to control it. Is that true?

Mr. HILL. Yes; it does in quite a few instances.

Mr. YOUNGER. That would apply all the way across the board on Federal aid in grant to cities, schools, and everything else? You are in a very fine field there. You have made a pronouncement. That comes up in all of our legislation and I would like to have some clarification on the part of a very fine learned man.

Mr. HILL. In the Federal Aid to Airports Act, sir, the Congress placed a section 11 which says that, "As a condition precedent to his approval of a project under this act, the Administrator shall receive assurances in writing, satisfactory to him," and then it states a list of things that the operator must promise to do if he wants to get that Federal money, so, yes, within these limits the Federal Government does impose conditions on the operator.

Mr. POGUE. Mr. Hill, the only function the FAA has in connection with these airport requirements is based upon that Federal grant-in-aid agreement and is not derived from any other section of the law, is that correct?

Mr. HILL. That is right. I don't think the Agency could impose any requirement on a city that it wasn't authorized by this section to impose.

Mr. WILLIAMS. At that point, we have certain laws down South, you know, certain State laws, and the Administrator has imposed upon us certain requirements which are not written in the law and are not required by Congress.

Mr. HILL. Not written in this section, but it is in another section of the act.

Mr. WILLIAMS. Are you telling me, since that was not written into the law that he require those assurances on the part of the local people, that he does not have the right to require that?

Mr. HILL. No, sir. There is another section that refers to that subject, and when you say the Administrator did it, all those suits were started by the Justice Department you know.

Section 404 of the Federal Aviation Act says that no air carrier shall make or give any preference or subject any person to any discrimination, or prejudice, or disadvantage. It was on that——

Mr. WILLIAMS. That says "no carrier." That does not say "airport."

Mr. HILL. That is right.

Mr. WILLIAMS. So far as the law is concerned, regardless of what is being done, the fact is that the requirement that separate restroom facilities be eliminated, for instance, is over and beyond the legal authority given to the Federal Aviation Agency; is that correct?

Mr. HILL. No. The courts held otherwise.

Mr. WILLIAMS. Following a directive of the Justice Department.

Mr. HILL. The courts handed down a somewhat surprising decision

in those cases, sir. They held that when a restaurant locates itself at the airport in order to serve a carrier's passengers, it becomes part of the carrier's business and is subject to this section.

Mr. WILLIAMS. That is certainly going far afield; is it not?

Mr. POGUE. I would back up just a little bit to get one point clear for the record.

Mr. Hill, it is a fact, is it not, that the FAA does not license any airport?

Mr. HILL. Yes; that is true. That is entirely true.

Mr. POGUE. So that the FAA's participation is derived from your Federal Airport Act and the joint agreement. Mr. Strunck has been trying to get the floor and I would like to recognize him.

Mr. STRUNCK. I think Mr. Shelley has the floor.

Mr. SHELLEY. I just want to say that they do participate to the extent of making subsidies to the airport operator, but the lights are installed by the operators.

I am sorry. No.

Mr. GOLDSTEIN. Oh, no; they are an FAA installation. They are not the responsibility of the operator of the airport. Navigational aids and things like that are a responsibility of the FAA.

Mr. POGUE. Mr. Shelley, you concur in Mr. Goldstein's statement so we will have the record clear?

Mr. GOLDSTEIN. I think Jim Hill can do that for us.

Mr. POGUE. The record is somewhat confused about who pays for the installation of the airport lighting system, and approach lights, and related facilities.

Mr. HILL. If we approve a grant, the Federal Government pays for 50 percent of it.

Mr. GOLDSTEIN. Wait, wait. We are speaking of the navigational aids on the airport. Aren't they installed by the Federal Government and operated by them?

Mr. HILL. Yes; I am sorry. You are right; they are. Runway lighting and things like that we pay 50 percent of, but beacons, and so forth, are the airport's responsibility.

Mr. GOLDSTEIN. Jim, I don't think that is straight yet. I think that all the navigational aids in connection with the operation of an airport are installed by the Federal Agency, paid for by them, and maintained by them. I think the airport operator supplies the land on which to place them.

Mr. WILEY. The approach lights, that is true. The runway lights and taxi lights are the responsibility of the airport operator. The airport lights are the responsibility of the airport.

Mr. HEMPHILL. How about the flashing beacon? Is that put in by FAA?

Mr. HILL. FAA.

Mr. POGUE. Mr. Stephen.

Mr. STEPHEN. I don't want to drop Mr. Williams' point yet. As I understand Mr. Hill, he said that the FAA view was that the Federal Government, the FAA specifically, would not use their powers under the Federal Airport Act to force the local airport authorities, to accept jet aircraft if they didn't want to accept jet aircraft. That wouldn't be, I gather, a proper use of the sponsor agreement between the Federal Government and the recipient of the Federal aid. But

without reference to section 404 or any other provisions of the Aviation Act, but with specific reference to the very sponsor agreement now in existence at all airports, all airports receiving Federal aid, the FAA has actually, as I understand it, even dictated that there shall be integrated drinking fountains and restrooms in the airport building.

If they have intruded themselves on "local wishes" to that extent, I don't quite understand the point that they would not force on a local community the acceptance of jet aircraft if the local community doesn't want the aircraft.

Mr. WILLIAMS. They did with regard to the restaurant in the Jackson, Miss., Airport and as a result everybody has to stand up to eat there. They had to move all the chairs and tables out.

Mr. HILL. This was as a result of a letter which the city received from the Civil Rights Division as I recall. I have seen a copy, but that letter did not emanate from the FAA.

Mr. WILLIAMS. But the action had to be taken by the FAA.

Mr. COLLIER. Notwithstanding the fact, I might add, that this committee and Congress specifically wrote into the legislation a prohibition for the use of any Federal funds in cocktail lounges or restaurants in airport facilities.

Mr. HILL. That is now so. The situation which Mr. Williams refers to was in older airports. It is true that last year the Congress amended the Federal Aid Airport Act to prohibit any contribution to terminals or any other buildings which didn't have a direct bearing on safety, and also parking lots and things of that sort, so we are not putting any money in terminals or restaurants or anything of that sort any more.

Mr. POGUE. Mr. Snow.

Mr. SNOW. There have been questions raised about jurisdiction and responsibility. A lot of them, I think, might be cleared up.

First of all, I think it is fair to say that every civil airport in this country with two exceptions, Washington National and Dulles, were built and are operated under authority of State law. Many States license or certificate airports. Many States don't, but they all have the authority to and that is where the authority originally arises from.

The other question as to who provides what on an airport, I understand one of the reasons for this very interesting get-together is to see what, if any, Federal legislation might be necessary in this whole field.

I am not sure, but there might be a need in this case. There is a great anomaly, in my opinion. You heard that runway lights are paid for half by the Federal Government. That is not quite true. They can be paid 100 percent by the city or 50 percent by the city and the State.

In some cases the Federal Government will pay 50 percent of the cost of runway lights. If they happen to be of high intensity they will pay 75 percent. Somebody mentioned the flashing beacon. That is an essential part of the runway lighting system and it is the way you find the airport at night in clear weather.

That is considered by the FAA to be part of the airport and eligible for Federal participation under the Federal Airport Aid Act. The Federal Government will pay half or the city can do it itself.

However, the electronic beacon that you use for finding the airport when you can't see the visual beacon is considered not to be a part of the airport and the Federal Government will not consider that as an eligible item for airport aid.

By the same token the runway lights themselves are considered to be a part of the airport. The lights just off the airport, the approach lights, the visual glide slope indicators, and so forth, are not considered to be a part of the airport.

In my opinion, that is a great mistake. I think that the so-called visual glide slope indicator may be the answer to many of our problems because we find that, contrary to what might be expected, one of the more serious aspects of the noise problem is an airplane landing, not taking off.

There are many reasons for this; particularly at night in a high-performance airplane in clear weather, the pilot has no effective method of telling how flat his approach is. If he is coming in on an instrument approach runway he has an electronic glide slope.

When he is not using that, he just doesn't know. He is shooting for the end of the runway, and I feel that an essential part of any big airport, if for no other reasons than for noise abatement, is a visual indicator that will give this poor guy an indication of what he ought to stay above.

I think that ought to be a part of the airport and ought to be made eligible for FAA participation.

Mr. HEMPHILL. Are you speaking of an ILS? That is not a part of the airport?

Mr. SNOW. That is correct. I was talking about a thing called a visual glide slope indicator, but the FAA doesn't consider, for Federal airport aid purposes, that the ILS is part of the airport either.

This is not an item for Federal aid, nor are approach lights.

Mr. WILLIAMS. ILS is not eligible for Federal aid?

Mr. SNOW. No. The FAA pays for it completely. They consider it to be a part of the enroute system.

Mr. WILLIAMS. That is what you were talking about. You refer to that as an electronic beacon at the airport?

Mr. SNOW. Oh, no. You also have on many airports a radio transmitter and you turn on your radio which points to it, just as you would turn your eyes toward a flashing light. The effect is the same.

There seems to be no great trouble in getting sufficient money for Federal airport aid, but there is some reluctance to provide enough money for the direct establishment of navigational aids by the FAA, so that the FAA has to parcel out its money. It says, "We have x dollars to put in approach lights or something. We can only put it at so many airports."

They pick the most important ones. The way the money situation is I am sure we would have many more of these things at airports if they were made a part of the Federal airport aid program and the local communities and States paid half the costs.

Mr. YOUNGER. May I ask a question there?

You say you have no trouble in getting Federal money? That applies to Massachusetts only?

Mr. SNOW. No sir. The facts, I am sure, will speak for themselves if you check the Federal airport aid cash flow.

Mr. YOUNGER. I mention it because we have trouble in California.

Mr. HEMPHILL. Let me ask you a question.

You said that the pilot has no way of establishing the glide slope. He has an altimeter and a rate-of-climb indicator.

Mr. SNOW. Yes: But in order to translate that into a glide slope he has to know his exact distance from the touchdown point at all times. Therefore, if you are coming into an airport at night you have to indulge in trigonometry, and the fact remains that in our experience the approach path of airplanes landing at night, particularly high-performance ones in clear weather, varies very greatly.

Some of them just skim the rooftops. Others are well up where they are no particular nuisance, and I sympathize with the pilots. It is pretty hard to tell.

The CHAIRMAN. Gentlemen, it seems to me that we are getting involved in a lot of other discussion here that is just a little bit off of the real subject that we have here today. We have reviewed the Airport Act and the responsibilities of the Federal Government under the act itself, and the local sponsors, but it seems to me we are getting away now from the real purpose of this discussion here.

I know these things are applicable, yes, but if we are going to try to get some of these answers with reference to noise I think we are going to have to move on into that discussion.

Mr. POGUE. Mr. Chairman, that is right.

One of the members sent me a note asking where did the noise go. We ought to turn I think now to the second phase of our discussion here, which is prelitigation preventive measures.

We may have to go back to the existing rights later.

The CHAIRMAN. If you are going to open up another subject this would probably be the best time to recess for lunch.

Mr. POGUE. Very appropriate.

The CHAIRMAN. So it has been suggested that we come back at 1:30. Can you make that?

Mr. POGUE. Yes, sir.

The CHAIRMAN. We will recess until 1:30.

(Whereupon, at 12:35 p.m. the hearing was recessed, to reconvene at 1:30 p.m. the same day.)

AFTERNOON SESSION

Mr. WILLIAMS (presiding). The committee will be in order, please.

When the committee recessed, Mr. Pogue had just concluded discussion of phase 1 and had planned to go into phase 2. So the Chair recognizes Mr. Pogue.

Mr. POGUE. Thank you, Mr. Chairman.

Before turning to this second phase, I have been requested to give Mr. Snow a moment to correct something, to make a restatement on something.

Mr. SNOW. It was called to my attention just before lunch that something I said was rather grossly misinterpreted, probably as I am not a lawyer and don't know how to express myself properly, so I would like to restate it very briefly if I could.

I believe that there are devices which can be placed at airports which will substantially help this noise problem. At the moment those appear to be completely within the domain of the FAA and they

are not eligible for airport aid. I meant to say—apparently I didn't clearly—that from where I sit it seems to be a great deal easier to get FAAP money for needed improvements to airports, or lighting or something like that than to get the FAA to put in things which they finance completely out of their own funds.

I therefore hope that some of these things would be made eligible by the FAA for Federal airport aid programs.

Thank you.

Mr. POGUE. Thank you.

Now, turning to phase 2 which deals with prelitigation, preventive measures, it is important to know where we stand in this field because the whole future is involved in it and what can be done to make better order out of the future is of vital importance. And the first general question, it seems to me, that we should have answered is, if we admit that there are certain areas of taking that are going to be involved because of aircraft noise, we need to know what criteria have been established to make it clear to the airport operator, to the Federal Government, to all concerned what land, in addition to the airport itself, what rights in airspace and what other kind of interest, if any, should be acquired in order to prevent this liability recurring, developing in the future.

Now, this is related to decibels of noise that we heard talked about; it is related to physical conditions of airports; and so on. In other words, have there been criteria established which will be valid and of use in determining just what you have to spend, that is, what you have to acquire, so as to prevent liability in the future? And I have asked Mr. Stickel if he could comment whether or not such criteria have been established, and if so, what they are.

Mr. STICKEL. Well, Mr. Chairman, Mr. Pogue, in the particular field in which I have been asked to appear here, which is zoning, I don't know of any specific criteria other than those mentioned by Mr. Goldstein this morning. I do know that there are planning agencies—the American Society of Planning Officials, and I think it is the National Industrial Association—that have prescribed standards as to noise, dust, smoke, and so forth, which have formed the bases of zoning ordinances on a performance basis.

In other words, years ago we used to think of zoning in terms of prohibiting a certain type of use of land by naming the junkyard and that type of operation. You listed a long list of types of uses that were prohibited. Today the thinking is that any use of industrial property that can meet certain performance standards should be permitted in any given zone.

To that extent I know that there are standards of noise and dust, smoke, and all these other areas, but I don't know of any particular criteria other than as Mr. Goldstein has related that are directed solely to this aircraft problem and I seriously question even if such criteria were established as to whether or not a local municipality could incorporate such criteria in their zoning orders, and if they did, whether it would have any effect because all zoning is done primarily by the municipality or in some cases by the county, and I think it is generally accepted as law throughout the country that a local municipality cannot zone against a public authority, and that these operators of airports are public bodies.

The zoning ordinance would not be applicable to them. So that I don't see what from a zoning standpoint even the establishment of such criteria would do zoningwise in view of the fact that the ordinance itself could not be applied to the operator assuming the operator, as in most cases, is a public authority.

Mr. POGUE. Mr. Stickel, as to the lands all around the airport, if the zoning were that it should be used only for industrial uses, heavy industrial uses, let us say for purposes of good illustration, do you have any question as to validity of such a zoning ordinance?

Mr. STICKEL. No. I believe that if you have a given situation where an airport has not yet been established or if an airport has been established and the land surrounding it is still undeveloped, that the municipality could zone both under the airport zoning statute and maybe under even its general zoning statute to provide land uses in the periphery of the airport that would be compatible with the operation of the airport and in the regulations prescribed in the zoning ordinance they could limit height and type of use, and so forth, to minimize the overall effect of the noise so that if there were a taking, it might not be as expensive to the operator as it would if, say, it were residential property.

You could limit and you could exclusively zone property. You could limit and you could exclusively zone property around the airport for industrial use only and you could limit the height of the buildings, and so forth, in that way, but if there were objectionable noise, query, there would still be a taking, maybe the amount of the damages or the amount that would be determined as the value of the navigation easement would not be as great as it would in the case of residential property or churches or something of that nature. But I don't think through zoning alone that you can eliminate this so-called taking.

Mr. POGUE. One other supplemental point along this——

Mr. YOUNGER. Mr. Chairman, before we pass on that, I would like to get Mr. Stickel's response to whether he feels that it would be proper for the FAA to make a requirement on furnishing matching funds that the property surrounding the airport for a certain distance should be zoned as for industrial use. In the case of a municipal airport or in the case of an existing airport where there was still vacant ground and they applied for additional funds, whether the FAA could make as a contingent upon matching funds that the remaining ground be zoned for industrial purposes.

Mr. STICKEL. Well, I believe, Mr. Congressman, that that is a method that could be used. It is presently being used in our 701 program whereby the Federal Government indicated that matching funds would be available to local municipalities through the State for planning programs and planning assistance, and this program which has been in existence now I believe for about 5 years or so has resulted in a tremendous impetus to planning and zoning at the local level, particularly in the smaller communities. It has also resulted in the older communities, the built-up communities, in a tremendous urban renewal program.

However, there are problems there that are almost insurmountable and you can't lay down any set rule. You take a built-up area. If Newark Airport, for instance, were to be given the choice of getting

Federal funds if the city of Newark zoned everything around it industrially, well, there are areas there where there is anything but industrial use, and therefore if the established use of the land was other than industrial to require a municipality zoningwise to zone contrary to the present existing use of land and create nothing but nonconforming uses, in my opinion the State courts would set it aside because one of the results must be reasonable. Zoning must be in accordance with a comprehensive plan, and therefore if you zone contrary to the way property is presently being used and you create 90 percent nonconforming uses, it isn't a reasonable exercise of a local police power.

Now, whether or not the court would say that because the FAA required that as a condition to a Federal grant it made the local action reasonable, I doubt very much.

Now, if you have an undeveloped area, then you have got an entirely different picture. But I don't see how you could make any positive rule and you have got the other problem of where the airport is located in a different municipality, such as Mr. Shelly indicated this morning. Clearly, like we have in Morristown, Morristown in New Jersey owns an airport in East Hanover. They have been battling ever since the airport has been there. Even if FAA said you have got to get zoning around the airport, otherwise you won't get any Federal funds, what is Morristown going to do? Are they going to go to East Hanover which has the same jurisdiction they have zoningwise and say, "Look, you rezone this property so we can use it"? The property owners and the councilmen in East Hanover are just going to say, "Nothing doing."

Now, to make that a condition to Morristown getting Federal aid would be unreasonable in my opinion under those circumstances.

Mr. FRIEDEL. At that point, yesterday, if I recollect the exact words of Mr. Halaby, who is the head of Dulles Airport at Chantilly, he stated that they contested zoning for apartment houses near the airport and Virginia approved the zoning for apartment houses practically right adjacent to the new airfield, so they were powerless to stop it. It is in Virginia and——

Mr. YOUNGER. No matching funds there.

Mr. FRIEDEL. No matching funds there. That is true. Of course, at Friendship, looking way ahead, they had it zoned properly in advance. It is all commercial, and as I stated yesterday, they wanted to build some homes within, I think, 5 miles or so near the airport and FHA refused to grant loans on the claim it would be a nuisance and the houses wouldn't sell. So it can be worked out for new airports if it is done in time.

Mr. POGUE. That is correct.

Mr. WILLIAMS. Will you gentlemen yield? The people who will suffer in Virginia will be the Virginians themselves who refused to zone it, so I think in this case the FAA exercised all of the responsibility that was on its shoulders. It didn't have the power to rezone it themselves, and they did intercede as an interested party, as I understand, in the hearing on rezoning, and since the people in that area refused to rezone it, they will be the ones to suffer in the long run. So I don't see there is too much of a problem out there.

Mr. POGUE. Right on that point, Mr. Chairman, can I ask you, Mr. Christopher, to comment on this? In the light of that history at

Dulles and in the light of action of the local zoning board in Virginia, if they go ahead and build the residential properties and then somebody finds it uninhabitable and brings a suit, what will be the situation?

Mr. CHRISTOPHER. Well, just speaking as a trial lawyer, looking at judges, I would think it might have a powerful influence on the judge.

Mr. POGUE. I hoped to have more than that.

Mr. WILLIAMS. Surely, you wouldn't try to predict what this court over here might do under any circumstances.

Mr. CHRISTOPHER. Mr. Chairman, that is exactly right. I do think, though, that these actions have an equity flavor about them, and it certainly would be taken into consideration by the court or jury.

Mr. POGUE. I would like to go back——

Mr. WILLIAMS. The court hasn't been too much interested in equity for the past 12 or 15 years.

Mr. POGUE. While we are on this general subject, I would like to go back, Mr. Stickel, to a point in land use zoning that we haven't specifically covered.

Usually I believe it is the fact that when a local community zones a given area of land, let us say commercial, you can use it for commercial or anything above that in your ranking of the zonings. So that, although it is zoned commercial, someone could put up a house on it.

Is there any reason why in zoning around these airports it couldn't cover the whole thing, and when it is zoned for heavy industrial, provide that it is zoned for heavy industrial and any use above that category would be without right of recovery?

Mr. STICKEL. I think what you are getting at is, I think we have gotten away from the idea that you zone for a higher or better use. The original theory of zoning was, you keep the pigstye out of the parlor, and therefore residential use was the highest and best use and as you went down in your zones, you allowed the higher uses in any zone.

We have now gotten away from that theory and we have gotten away from, as I indicated earlier, the negative approach to zoning. We have gotten into the positive thinking in zoning, and zoning positively for a use rather than against a use. And therefore it is my opinion that the trend will continue whereby you would zone exclusively for industrial use, heavy industry, light industry. You zone exclusively for business. You would zone exclusively for, of course, residential, and you allow only those other uses in those exclusive zones that might be compatible with the major use by way of a special exception or special use, which sets up standards whereby the use could be compatibly conducted with the main use.

And I feel that if we got into this area, that you would have no difficulty in sustaining a zoning ordinance which zoned around an airport for an exclusive use that was compatible with the airport use, provided it maintained certain standards as to height and area, and so forth.

Mr. POGUE. Now, we have the zoning, therefore, as affording some relief regardless of who does it, and we will get into that a little bit later.

Coming back to the acquisition of those rights which you can't cover by zoning, I have a question I would like to ask Mr. Hill.

Mr. Strunck, you had something on this last point?

Mr. STRUNCK. Yes; on zoning. I would say the only reported case to my knowledge concerning aviation land use zoning found that the ordinance was invalid. I think the citation is *Banks* v. *Fayette County* and I have 313 Southwestern 2d 416. They said that the effort to zone out particular uses around an airport in that particular instance bore no relationship to the health, safety or welfare of the community. What they did in that instance was attempt to zone for industrial or residential uses and exclude commercial. The court said in essence that if you have a land use which would authorize 15 people in a room, regardless of whether it is zoned residential or industrial, the same 15 people could be in that room and consequently it wouldn't bear any relationship to safety and the normal zoning standards.

And there is one other aspect that I would like to go into. I recall that last July the FAA made a comment that zoning is the cure-all for all ills. In Illinois, during the legislative session of 1961 the statutes were amended to provide that the State of Illinois, through its department of aeronautics, would zone airports.

As Mr. Stickel points out, you have a great political problem. You have one airport. You have 5 or 10 municipalities surrounding that airport and they can zone any way they want.

Well, in Illinois we have superimposed State zoning for airport purposes over municipal zoning and I think the director of the department of aeronautics, who was formally requested to institute zoning action for O'Hare-International Airport, is going to shortly hold public hearings. We suggested last July that we would inform this committee of the date. We have taken it upon ourselves to inform the FAA and we hope the FAA, through their local staff, from the top on down through the regional office, will come out and participate in these hearings and suggest to the State of Illinois just what type of zoning an airport should have.

I would also suggest that the FAA pursue this matter all the way through the courts, if and when lawsuits are filed by the affected property owners of the surrounding area. It has been our observation that in zoning for an airport—we can take O'Hare Field—the matter of barring residential zoning is not a cure-all, because the biggest single land use in these surroundings towns has been residential, not single family, but multistory, multiapartment, and motel use.

The stewardess who works for United Air Lines, which happens to be headquartered in Chicago, does not want to rent an apartment on 55th Street and travel back and forth to O'Hare Field, a $6 or $7 one-way cab trip, every day. She wants to be across the street from the airport. The same with the traveler. He generally does not want to be downtown. He also wants to be across the street from the airport. And these people are not the people who complain about jet noise.

Again, as Mr. Stickel points out, it is the individual residence which has been there for 30 or 40 years which the FAA would like to make a nonconforming use due to noise objection. As Mr. Stickel points out, you just can't do that. If the FAA wants to zone the entire city of Park Ridge, which adjoins Chicago or the entire city of Des Plaines, both of which have been there since the 1870's as nonconforming uses,

they are in a perfect position, I think right now, to come out and do that. I don't think the FAA needs to come to Congress and ask for legislation to impose land-use zoning on municipalities. I think we have an opportunity to do first things first. Let them go to the State of Illinois at Springfield and sit down with the director of the department of aeronautics and in public hearing say this is the type of zoning we recommend and we feel certain it will be upheld in the courts of law of the State of Illinois.

I think they have the first opportunity there. I don't think the first opportunity is here. It is fine to try to pass the buck back to the municipalities, but I don't think it is feasible.

Mr. FRIEDEL. I think Mr. Halaby showed us a chart yesterday that they submitted for all the new airports before they build. They have a guideline for new airports, don't they?

Mr. HILL. That is true, Mr. Friedel. We do have a series of planning guides. Guide No. 3 is a guide which shows sound pressure levels going out from the departure path of an aircraft, and which can be used as a zoning guide. The FHA uses it today in determining whether or not it will insure mortgages in this sound area. Mr. Halaby left a copy of this with you. It shows that the 100-decibel level created by a 707 is a path a mile wide and 3 miles extended from the airport. The 90-decibel level is about 2 miles wide and goes out 6 or 7 miles from the end of the runway. Whichever the community wants to adopt depends on what noise level that community zoning board decides is acceptable.

We are in the process of updating the guide to include similar charts for smaller jets, for military bombers and jet fighters and for propeller planes also, but this is the only one we have out now.

Mr. POGUE. Mr. Williams.

Mr. SPENCER WILLIAMS. Mr. Chairman, I agree with Mr. Strunck, that the validity or the effect of zoning has been overrated in solving this problem.

Mr. Younger, you are familiar with the San Francisco Airport, for instance, which is in San Mateo County and surrounded by the city of Millbrae, and an unincorporated area. So the city of San Francisco has no control over the zoning in that area. It is strictly in the hands of competing agencies, and in some instances, they couldn't care less about the zoning around the San Francisco Airport. As a matter of fact, they have recently issued building permits to build apartments right at the end of runway R–1, which is one of the two major runways in San Francisco Airport.

Mr. YOUNGER. I might say, though, that land was zoned for apartments long before the jets came in, but the city wouldn't change the zoning.

Mr. SPENCER WILLIAMS. That is correct, because there is a certain amount of competition between these agencies.

Secondly, as Mr. Stickel indicated, there still can be a constitutional taking. While zoning may lessen the cost, it is not a cure-all. It does not avoid a suit for an inverse condemnation when the air over the property zoned is actually used by approaching aircraft.

And thirdly, as we all know, local agencies who are in control of zoning are subject to a great deal of pressure to alter zones as property values in the areas increase, and to make the future of an airport de-

pend on the action of a third agency over which it has no control is, I think, unreasonable

Mr. POGUE. I would like to come back to Mr. Williams' point in a moment, but Mr. Stickel has another point.

Mr. STICKEL. I think there is another defect in thinking zoning is going to contribute much to this problem. In the first place, most of the States in the Union have enabling legislation which is based upon the Hoover Commission Act of 1923 put out by the State department of commerce. It has, in a lot of States, been modified by amendment since then. But that model act, that State zoning enabling legislation, has been interpreted by most of the courts not to give power to municipalities to zone for airports.

As a result of that, there was legislation specifically adopted or a model act, the Airport Zoning Act, which, as I understand it, is in effect in all but eight States presently but that model enabling legislation, and I have a copy of it here, is limited to the elimination of hazards, structures that are already existing, and it recognizes, as most zoning legislation does, the existence of nonconforming uses, and indicates quite clearly in the enabling legislation that nonconforming uses must be permitted to be continued.

It goes one step further and gives power to the municipality where there is nonconforming use that creates a hazard to acquire by condemnation the necessary navigation easements to eliminate these hazards, so that, as I understand here, there are eight States in the Union where there would be serious question as to whether we could adopt any airport zoning.

Now, if the FAA comes along and says, "You have got to have zoning around an airport in order to get Federal aid," and the State enabling legislation is not there for which the municipality could even do it if they wanted to do it, you are penalizing those States which don't have that State enabling legislation and that do have it are limited in the exercise of that power to zoning by the State enabling legislation and the airport zoning act.

Mr. COLLIER. What States do not have enabling legislation?

Mr. STICKEL. On the airport zoning?

Mr. COLLIER. Yes.

Mr. STICKEL. Colorado, Delaware, Missouri, New Jersey, Ohio, Rhode Island, Virginia, and West Virginia.

I am taking my authority from Charles Rhyne's book on municipal law. This was written as of 1957. I haven't had an opportunity to check as to whether, in the last 5 years, any of these eight States have adopted such legislation.

Mr. COLLIER. In the light of this problem, it would seem incumbent upon these State legislatures to move in that direction.

Mr. STICKEL. Well, that may be so, but we have enough trouble trying to get some legislation passed at the State level, and if they refuse to pass such legislation, what position does that put the municipality in?

Mr. COLLIER. I just wanted to add one other thing: Where you have a problem in an unincorporated area in most of the Middle Western States, to my knowledge, the county boards in such cases would have the authority and the jurisdiction to pass such zoning laws as were necessary. But I think this very clearly points up one of the major

problems, and that is the necessity of total cooperation between the various political subdivisions in coping with this problem which is everybody's problem.

Mr. STICKEL. I think that is very true, and it is true that in many States the zoning is at the county level, but I just point out from my own State of New Jersey, in spite of the fact that the U.S. Supreme Court said that zoning was a reserve power to the municipality and could be operated by the municipality under the police power, we had to pass a constitutional amendment to our State constitution, which constitutional amendment only gives the power exclusively to municipalities. So that a county, a regional agency, or the State is constitutionally prohibited from zoning in New Jersey.

Now, what would a county or another agency do as far as zoning is concerned, because in New Jersey it is exclusively within the power of the municipality. You have got more problems than just trying to get complete cooperation on the part of all of these people. You have got constitutional amendments and all that, that is necessary.

Mr. POGUE. One is constantly amazed at the complications of our dual system and the subsidiary complications within the States.

But we have now, on the one hand, the zoning power that is applicable certainly to new airports, but we have learned that it isn't the sole solution for existing airports for a lot of reasons, even though it may help a great deal.

On the other hand, we have that area where everybody says that zoning isn't the solution for all of the rights involved, and, as to those, some kind of acquisition of the rights would be necessary in advance if we are to avoid litigation over them.

I come back, then, to the first question and would like to ask Mr. Hill if he knows of any criteria that are in the process of being developed or that have been developed which would be of use if it were determined to acquire these rights which cannot be covered by zoning with respect to airports already in existence.

Mr. HILL. Airports already in existence?

Mr. POGUE. Yes. Where you have to acquire rights, the land or rights in airspace, or other interests in advance to avoid litigation.

Mr. HILL. No. We have no criteria on that. We are developing criteria, as I told Mr. Friedel, on the area which can be included within zoning but not on the areas which should be included within acquisition of rights. They would not necessarily be the same.

Mr. POGUE. No. But would you venture any observation from your informed judgment as to the magnitude of the financial outlay that would be necessary to cover such acquisitions?

Mr. HILL. Yes. I have heard of a survey that La Guardia ran several years ago as to how much it would cost to acquire easements in just the land extended from one runway, which I think was runway 22, to accommodate big jets, which they regarded as an area 400 feet wide and 11,000 feet long, and which I think was much too little an area, as a big jet covers the ground with more than 100 decibels over a far greater area than that, and I heard they computed it would cost them $242 million. That was just one runway, on one airport. Also, General Kuhfeld this morning referred to the Air Force survey in which they estimated $7 billion at their airports.

General KUHFELD. That is only a 6-mile area.

Mr. HILL. So it would be a tremendous amount of money.

The CHAIRMAN. While we are there, would you permit an inquiry on that subject which Mr. Williams raised before? What would be the effect of obtaining the easements? Could there be a solution to the problem if an easement could be obtained?

Mr. HILL. If I may volunteer an answer, sir, I don't think that is the most effective solution. It pays a landowner something but if he happens to be the landlord of an apartment house, it isn't going to appease the tenants any because the landlord got some money. If the property is later sold and somebody else buys it, it isn't going to appease the new owner, to know that his predecessor got some money. To buy easements pays somebody for the airspace but it doesn't separate the noise from the people and we are still going to have the complaints.

General KUHFELD. You are not going to have liabilities.

Mr. HILL. That is right.

Mr. STRUNCK. One point further: I think it is part 626, regulations of the Administrator, Federal Aviation Agency, thus for proposed zoning. According to this regulation, an instrument approach zone has a width of 1,000 feet at a point 200 feet from the end of the runway and it widens thereafter uniformally to a width of 16,000 feet at a distance of 50,200 feet from the end of the runway.

Now, again speaking of O'Hare Field, that instrument approach zone would cover a large part of Congressman Collier's district on one runway and Congressman Pucinski's on another runway. Then we get into the *Griggs* case which leaves a big undefined void. The *Griggs* case says that in the approach zone a taking is compensable, so we are going to adopt a zoning law in the face of a Supreme Court opinion which indicates that maybe these people in the instrument approach zone are subjects of a taking out to a distance of 50,200 feet from the end of a runway or 10 miles away. Yet, this is what the FAA writes in part 626.

Mr. HILL. We are talking about three different things here. An obstruction-clear zone is an area in which buildings can't be built. It goes out 2,500 feet, a half mile. A clear zone to acquire noise easements will go out farther, might go out 2 or 4 miles if you want to include areas of 100 decibel soundings, out larger than that, if you want to reduce it to 90 decibels.

An approach zone which is where an airplane begins to start coming in, that may be 10 miles out from the airport when he is still several thousand feet in the air. It is just the point where he gets lined up. It doesn't have anything to do with noise.

Mr. POGUE. Mr. Shelley, while you are speaking, if you would make any comment upon the feasibility or the lack of feasibility from a practical point of view of acquiring all these rights that cannot be controlled by zoning, it would be useful.

Mr. SHELLEY. First, Mr. Moderator, with your permission I would like to address a question to Mr. Stickel because it relates to——

Mr. POGUE. Speak as loud as you can.

Mr. SHELLEY. One of my difficulties with the type of zoning which we are discussing, confining land uses to uses compatible to the airport, is a constitutional question and since zoning is a matter of State law, it would appear to arise in some 50 different jurisdictions because there

is no guarantee one State court will do what the court of another State does.

My difficulty, and perhaps, Mr. Stickel, you could comment, is that the conventional old-fashioned zoning that I learned about in law school was upheld as a proper exercise of police power, as I recall in New York State, on the ground that while you were placing a special burden upon the property, you are placing the same burden upon all the property within an area, within your zone, for the benefit of all of the other property in the zone.

It seems to me the type of zoning we are talking about is where you place a special burden on the property within the zone, not for the benefit of that property but for the benefit of the airport which is an entirely different thing, and perhaps the point is exemplified by the fact that if you were to zone against motels and hotels, I think any airport operator who operates an airport, who has any business at all, would say, but we must have those on the airport, and you face the proposition that are you going to say you can't have them around the airport but can on the airport? But mainly I come back, Mr. Stickel, could you comment on the question of zoning one area for the benefit of another area with no corresponding burden or benefit?

Mr. STICKEL. That is a very good question. I don't think you are entirely right in saying that the zoning regulations within the zone are necessarily limited to benefit or burden the properties within the zone. I think zoning, as all zoning must be in accordance with a comprehensive plan, and certainly the buffer areas that would have to be created, say, in an industrial zone that abutted a residential zone would be for the benefit of the adjoining zone and not necessarily for the benefit of the properties within the zone, and it has been upheld many times that you could create a buffer area for an industrial zone around where it bordered on a residential zone.

It is perfectly true, however, that all of he regulations within any zone must be uniform and must uniformally apply to the same structures within the zone. However, I think you are right in saying, in your comment, that zoning to protect and to benefit an airport particularly is going beyond the original concept of zoning and it is very questionable as to whether or not you can go beyond the Airport Zoning Act enabling legislation which was limited to hazards because what you are in effect doing here is taking another man's land and saying, you are limited and perhaps prohibited from building anything and creating a buffer on his land for the benefit of another user.

Now, I have a case in the New Jersey Supreme Court where one of our planning experts thought he was doing something very wonderful and he created a buffer area—this involved a quarry which, of course, involves a lot of noise, and so forth and so on, so to that extent I am still standing on noise, Mr. Chairman—he said that no residential building could be built within 1,000 feet of a quarry and the court upset that position on the basis that if the quarry were located within 500 feet of the quarry owner's property line, this regulation was in effect using the abutting residential property to the extent of 500 feet as a buffer area for the benefit of the quarry, and they said that that was an unconstitutional taking of property and therefore the zoning ordinance in that respect, although they upheld the ordinance in the other respect, they struck down that particular provision as

being unconstitutional and said that whatever buffer area was created had to be created by the owner of the property who would benefit by the buffer area.

So to that extent you are right.

Mr. POGUE. Before we lose any members of the committee—I know there are certain commitments this afternoon—I would like to turn now to another phase of this matter which has been raised again and again and which undoubtedly the committee is interested in insofar as zoning is concerned. We have heard of difficulties, and there are many, in the zoning solution to the problem, and it is admitted that it can't be the entire solution, but we have also learned that there are practical limits to the acquisition approach so that that isn't the whole answer or can't be the entire answer either.

Now, with respect to the zoning approach, it was partly covered but I believe it would be generally admitted that where Federal funds go into airports, and they have gone into most of the major airports in the country, reasonable efforts have been made to secure local zoning as a part of the sponsor's agreement. It has been my experience, and I believe others could confirm this, that as a general rule for one reason or another generally speaking it has not been feasible to carry those obligations of zoning locally into adequate effect. Sometimes it is impossible for some reason. Sometimes it might be lethargy. Sometimes it is some other reason. But in any case there is a large area of default there, on the part of zoning where it is not effective; it hasn't been enough.

Time after time, therefore, the question has been raised about a Federal zoning act. That possibility has been posed in various configurations but the one most often urged is a Federal act which would authorize the FAA to zone in the case of new airports—at least, if the local people didn't adequately zone when the construction was started or completed or whatnot. In other words, this authority could be exercised as a fallback right which would apply also in those cases where there are multiple jurisdictions and they don't have constitutional authority for zoning. Whether it is desirable or not I am not saying. I am posing the question as it has been put.

I will ask Mr. Wilner if he will comment upon the legality of the constitutionality of any such law if it were undertaken, and some of the legal aspects of it if it were on the books.

Mr. WILNER. I think, Mr. Pogue, the way the question was framed was, was Federal zoning under appropriate enabling act constitutionally possible, and if so, should it be used generally where Federal money is invested in airports, or only where the governmental unit defaults in carrying out its zoning obligation.

Because of the way the question is framed, the simple answer to the first part of it is "Yes." Despite precedence to the contrary, and all our own feelings concerning local jurisdiction, the Constitution certainly could have or could be considered by a Congress to have sufficient elasticity for it to be stretched by that Congress and under judicial test by a Supreme Court affirmed to permit Federal zoning for airports. While it might be unwise, it is nevertheless possible, and this particular committee above all can recognize under the general powers of the commerce clause that Congress has full power not only to enact legislation for the establishment of airports re-

quired for interstate commerce or for the national defense but also to exercise the necessary auxiliary powers in connection with the operation of such airports.

Now, Mr. Tondel stated earlier that Congress provided previously that navigable airspace is to be in the public domain and he further stated that later there was added that the navigable airspace is to include airspace needed to insure safety in takeoff and landing of aircraft. And it could argue that zoning which is required for the operation of the airports is likewise within the police power of Congress.

Despite Mr. Strunck's cited *Southwestern* case, such Federal legislation could provide, for example, that all land within a specified range of an airport would have to comply with certain building standards and that in order to protect safety or health of the population, only certain types of establishments could be constructed thereon.

Well, of course, such an approach is not recommended. An approach of this type would be subject to challenge and criticism on two strong grounds. To the extent that such zoning would deprive the property owners of certain uses of their land, zoning could be considered a form of taking certainly under the fifth amendment and the Government would become liable for the payment of damages as in an eminent domain case. Direct Federal zoning legislation would also be contrary to the long-established pattern in this country to have zoning matters handled by local units of government, and as Mr. Stickel pointed out, limited in eight States also. It is obvious that such legislation would produce strong opposition from States and municipalities.

Therefore, the second part of the question as to the use of such a hypothetical zoning law, though possibly constitutional, such law would be vexatious. It would be practically impossible to administer on a fair and equitable basis, as Mr. Stickel has pointed out, too, and it might be an open invitation for a new type of land poacher to feed at the public trough.

Although some of my brethren at the bar may disagree, it would seem more appropriate to handle these problems of necessary airport zoning, despite the fact that it may not be a panacea for all our ills, through a cooperative program with local authorities.

Now, the Airport Development Act in itself granted the Administrator of the FAA the power to demand compliance with certain conditions precedent before approving an airport project. As Mr. Hill has pointed out, the Administrator, for example, must receive assurances in writing satisfactory to him that the area approaches to the airport will be adequately cleared and protected by removing, lowering, relocating, or marking or lighting, or otherwise mitigating existing airport hazards, and by preventing the establishment of or creation of future airport hazards.

Mr. Stickel earlier said, and properly, that under appropriate congressional authority, the Administrator can, before granting Federal aid to an airport, require the local government agency to plan such development, whether it be the county, the township, city, or any special authority, and they might be required to enact reasonable zoning standards for the area adjoining the airport.

And I believe he just does this, as Mr. Hill has stated, I think he called it the series No. 3, and part of that program, I might point out,

Mr. Chairman, is being promoted by the privately supported agency of the industries involved, the National Aircraft Noise Abatement Council. The council has actively outlined to municipalities, and I believe it further should to some State legislatures now, and to citizens, the fact that the proper use of land in the vicinity of the airport is one of the most important and effective noise abatement measures.

Now, while it is true that zoning does not produce a remedy to cure the problems of the established airports like New York and Pittsburgh, these could be handled on a case-to-case basis through possibly urban renewal approach, and I believe our able moderator is going to take that up later.

In any event, under our democracy, the combination of the treatment by the FAA Administrator under the Federal Airport Act, with attempts, perhaps, on the part of Congress to assist urban renewal and the continual education process, would appear to serve more of our people better than would an auxiliary Federal airport zoning act, even though such may possibly be considered to be constitutional under the police powers.

Mr. POGUE. Mr. Snow, would you have any comment on the matter that I alluded to but didn't cover very well, as to whether the local zoning for airport purposes has been generally undertaken, or if there is a good deal to be desired in that area yet?

Mr. SNOW. Well, I think it has been pretty clearly pointed out that there are two kinds of zoning we are concerned with at airports, the approach protection zoning and land use zoning.

Now, the approach protection zoning has been used quite extensively and effectively. The FAA requires as a condition precedent to granting any substantial sum of money that the approaches be protected. It is sometimes done by buying clear zones or they will accept zoning.

Now, there is this problem again that has been pointed out, that very often the community owning the airport doesn't own the land under the approaches and the surrounding communities aren't generally very receptive to helping the airport-owning community. The answer to that appears to be what has happened in Illinois and some other States: direct State action. We have it in Massachusetts in the case of our major airport. We had to, because the approaches involved 17 cities and towns.

Now, the other type of zoning, land use, I don't think it has been effectively used around airports anywhere that I know of for various reasons, and one of them is that there are very few new big airports being built or going to be built. Most of them have existed for a long time. But I subscribe to many of the things that have been said here. We have a State urban renewal act which is based upon Federal help and speaks of blighted areas, and there is a good deal of talk of open-spaced zoning.

It has been my experience that there are certain types of uses of land which wouldn't be affected much by operations to and from an airport.

For instance, believe it or not, animals, except perhaps turkeys or mink, seem to become very rapidly accustomed to airplane noise. Black ducks, one of the flightiest birds I know, sit under a jet warming up and get completely used to them. So I should think some kind of an urban renewal combined with openspace zoning, perhaps

agricultural use or something of that sort, rather than industrial use, it would be a long job, and it has got to be done slowly and cooperatively between the Federal Government and States and communities and airlines, but I think we ought to start now. Just because it doesn't solve the problem at once, I think we ought to start on a long-range program.

Mr. POGUE. Now, are there other panel comments on this area before we turn to another? Mr. Strunck?

Mr. STRUNCK. Just one thing further, implementing what Mr. Snow has stated. It has been my observation that perhaps something could be done in the open-space field. For instance, if you wanted to put a forest preserve around an airport, I think under the Federal legislation now you can get Federal funds for that purpose. If there was a direction in my mind applied to the administrators of that particular facet of Federal Government, whereby they would or must consider in the allocation of Federal funds open space around airports or forest preserves around airports, it might serve a good purpose.

The reason I state this is because generally when you have a local public agency that is acquiring land for a forest preserve, they too are limited by their local taxation sources. So they will look for the cheapest land, usually swampland or land along the river or something else of similar value. They will go out and look for land that may be $300, $400 or $500 an acre. They will absolutely refuse to go into the neighborhood of an airport where the land is going to cost anywhere from $1 to $1.50 a square foot and I think if it was suggested through legislation or resolution that the Federal agencies consider aircraft noise and airports in allocating funds or approving projects for open-space acquisition, that would go a long way to solve the immediate problem.

Mr. POGUE. Mr. Shelley?

Mr. SHELLEY. If I correctly understood Mr. Wilner, he suggested a very strong possibility that Federal zoning might be held to be a taking under the Federal Constitution. I just wanted to add a comment that would be equally true, that the same question under the Federal Constitution would arise and the answer would be the same with State zoning.

Mr. COLLIER. In that connection, I might suggest that while it is heartening to hear the concern reflected here today of the invasion by the Federal Government into those areas where properly jurisdiction should be local or State, certainly there has been great precedent for this invasion in one statute after another that is on the books today where the Federal Government has moved in where a State has failed to act. We have this in Taft-Hartley. I could cite 12 or 14 of them that you are all familiar with. This certainly wouldn't be a new concept in any way, shape, or form, and it wouldn't be committing the first sin in this regard, let me say, if it did happen.

Mr. STICKEL. It would be the first time it steps in on private property rights.

Mr. COLLIER. Well, the question of whether this would be unique in private property rights and whether in this case it would be more serious than in other cases where there had been an invasion of personal rights by the same concept.

Mr. STICKEL. Even the Federal Government when they build a post office or anything, they may not be covered by zoning. In other words, you can't exclude a Federal post office. You can't exclude a Federal building by zoning, because the Federal Government is on a higher level of government than the local government, but still, by the same token, if the Federal Government moves in, they have still got to condemn the property from the private property owner and take it away from him.

Mr. COLLIER. In the final analysis, even condemnation and the right of eminent domain frequently constitute an invasion of personal property, whether it is so construed by law or not.

Mr. STICKEL. That is the point that Mr. Shelley is trying to make, that zoning, once you go over that gray line, you are requiring condemnation. Up until that point, it is an exercise of the police power. All zoning is a taking away of some property rights, but it is for the benefit of the majority of the people, but once you go over that line, that gray line, through your regulation, you are going into condemnation, and therefore there must be a taking and a compensation for what you have taken.

Mr. COLLIER. I trust I haven't left the impression that I am for it. I simply——

Mr. STICKEL. No, no.

Mr. COLLIER. I simply commented that the precedent is there.

Mr. POGUE. I think you are right, Mr. Collier. I think the record deserves this statement from me. I don't think anyone would disagree with the statement that zoning, whether it be State or county or city or Federal or what, does restrict private property rights in some manner. It is useless to say Federal zoning or State zoning would be a taking, because it is a question of what the degree of restriction is—what the courts say requires compensation. That is really where the focus of the point is, because all of the exercises of these police powers, and for that matter, as you point out, exercises by the Federal Government, perhaps under the Commerce power or somewhere else, do affect private rights, but they don't involve a taking.

Mr. Christopher a long time ago had a point he wanted to make.

Mr. CHRISTOPHER. I didn't want to leave the subject of prelitigation, preventive measures, without referring to the value of cooperative measures in noise abatement on the local level. I notice that was not one of the topics here.

In the Los Angeles area, I think the Los Angeles Sound Abatement Coordinating Committee under Jack Shelley's direction, who is here in the room, and under the direction of others, has made real progress in noise abatement. The change of glide slope to 3° and the extension of the instrument runway are examples of the kind of things that can be done under the aegis of a local committee cooperating to try to abate the noise.

I think that other communities, where the noise abatement problem is just at the threshold, might follow the example of some of the cities where they have had a lot of experience with this. This is a way of working at the real core of the problem, abating the noise.

Mr. POGUE. A very good suggestion.

Mr. GOLDSTEIN. Mr. Pogue, if I may, I just wanted to note that my remarks earlier in the morning were directed to just that type of

activity on the part of the airport operator with the cooperation of the airport user and the Federal agency in trying to avoid this intolerable noise condition. They involved improvements on the airport, as well as restrictions in connection with the use of the airport.

Mr. STICKEL. There is another way in which noise abatement can be taken care of and I think Mr. Goldstein could maybe comment on it.

Up in our area, in New Jersey, when the port authority was going to establish a jet airport up in Morristown, the property owners all got together and bought all of the land that they were talking about and formed a private corporation and turned it over to the Federal Government so, as I understand it, the port authority couldn't condemn against the Federal Government.

Mr. GOLDSTEIN. Well, I must clear up that comment of Mr. Stickel's. I thought we had laid that to rest by this time.

The port authority did not start out to establish an airport in Morris County. The port authority, under its charter, has the responsibility for studying aviation needs in the port district. As a result of its studies, it made a report to the legislature which indicated that in its judgment, the growth of air traffic would require an additional airport. It suggested that the best location would be in Morris County. It had no power to establish an airport. It only had a power and an obligation to study and report. What happened to that report is history.

Mr. POGUE. Mr. Chairman, I would like to turn now for just a few brief moments to our phase 3 and see what has happened in other areas with respect to these problems.

Mr. Tondel, will you comment on the question of whether the railroads experienced suits by private citizens because of noise, smoke, social objections, and if so, how extensive have the suits been and what have the results been, in general? And also, what has been the experience in the bus and trucking fields in regard to these matters?

Mr. TONDEL. Mr. Chairman, particularly in view of the fact that the afternoon is fast slipping away, I am going to be extremely brief and extremely general. In fact, after I knew this question was going to be asked me, I didn't have time to do more than explore the secondary authorities which have summarized the cases, and there are so many cases in the railroad field that I couldn't possibly have tried to analyze the results in the time available.

I did run across this quotation, though, from a Law Review article written in 1934, which summarized the various types of noise litigation that had been going on in the then recent past, and the concluding sentence says—it is by Professor Lloyd of the University of Pennsylvania Law School:

> Air- and sound-conditioned houses may be the next luxury when luxury is resumed to the profit of our inventors and engineers who, having devoted one century to creating pandemonium, may spend the next century in abating it.

That was 1934.

Mr. POGUE. Applicable to the railroads.

Mr. TONDEL. Well, railroads and many others. Radio was one of the prime causes of suits at that time.

With respect to bus and trucking activities, there certainly is a problem, and I will mention just one case, *Matheson* v. *The New York*

State Thruway Authority, decided in 1960, where the residents, certain residents of the village of Pelham Manor, tried to enjoin the use by trucks, buses, and tractor-trailers of the New York State Thruway between the hours of 8 p.m. and 8 a.m.

The appellate division of the Supreme Court of New York dismissed the case on the grounds that the complaint didn't show that the plaintiffs were affected to a greater degree by the noise than others living in the vicintiy.

I just point to that and to a recent newspaper story within the last few weeks involving a suit or threatened suit in Passaic, N.J., along the same line, to demonstrate that this is not the only area where we have this problem. But I don't minimize for a moment the severity of it.

Mr. POGUE. I will ask Mr. Stickel if he will comment on whether or not there have been zoning attempts to cover the problem in the railroad field.

Mr. STICKEL. I don't believe there has been any zoning against railroads. I think this involves the question of interstate commerce and that the Federal Government is supreme in that field.

I know of no zoning ordinances that would exclude railroads or that would regulate the use of railroads. As a matter of fact, I know of nothing where zoning regulates the use of railroads.

Mr. POGUE. I was thinking, too, Mr. Stickel, of regulating the land uses, the land near, let us say, a roundhouse or something like that.

Mr. STICKEL. I think it has been generally—local municipalities have zoned the land along railroads for industrial use. As a matter of fact, when this issue as to whether or not you could exclusively zone a given piece of property or given area for industrial use, the courts have gradually come around to supporting the industrial zoning, exclusive industrial zoning, only if it is reasonable to expect in the reasonably foreseeable future the land will be developed for industrial purposes, and to that end, they have determined the foreseeability and the advisability of such zoning by whether rail facilities are available, and one of the determining factors in many of these exclusive industrial cases is the presence or nonpresence of railroad facilities.

Mr. COLLIER. May I just interject one thing that I think is important, and it has been touched on here. It provides a reason why we can't draw a complete parallel certainly to the noise problem of aircraft and trucks and railroads, and that is that under local ordinance, the local municipality can regulate the speed of a train. It can establish legally whether or not a train zooming through a residential area can use the whistle going through, or whether it can't. In fact, I think there are probably records of citizen arrests of drivers, and I think even of one case of an engineer where it was held that his conduct or operation of the vehicle provided a violation of the local nuisance ordinance or disturbing the peace.

It would be quite difficult to make a citizen arrest of a pilot who might well be guilty of a flying technique that created more noise than was necessary to bring the plane down.

Mr. STICKEL. Mr. Collier, you are perfectly right. My point is that these regulations have not been imposed by zoning. Intrastate railroads—I think Mr. Goldstein can correct me—would be governed largely by your local public utility commission, and in many States

you have a specific provision in your zoning enabling legislation which exempts public utility operations from local zoning on the theory that such regulation is imposed by the State agency.

Now, it is true that there are local ordinances which may go to the noise and dust and all of that from the standpoint of health, the local health code, and I know of cases where the—the Erie Railroad, for instance, has been brought up on charges in the local municipality for failure to have the necessary smoke deflectors, which would allow the dust and smoke cinders to be cast over the property. But this is not done by way of zoning.

Mr. POGUE. I would like to turn now, for the remaining minutes we have, to category 4. That would relate to the areas where the Federal Government might be of concrete assistance in various ways to the metropolitan areas and the State areas in trying to meet this noise problem.

As you will recall, at the outset, I mentioned 10 areas where, in other fields, this has been undertaken by the Federal Government, and, Mr. Goldstein, I think you have already commented on some phases of the matter, but could you comment on the question of whether or not the Federal Government should undertake a program of assistance to the State and local authorities, recognizing that the solution of the aircraft noise abatement problem is partly—perhaps primarily—their responsibility, so that that program could develop along the lines of the present air pollution and water pollution programs of assistance which the Federal Government has established.

Mr. GOLDSTEIN. Well, Mr. Pogue, Mr. Moderator, in the interest of being brief, I certainly think the Federal Government can participate in the solution of that problem. I think there were bills pending in the last legislature which, in a degree, looked toward Federal participation, especially those bills that would supply, to the FAA, something that I think they said they lacked, namely, authorization and direction to conduct research into this question. After all, ultimately they certify the plane that is to use the airports where the situation obtains. I think, as another step, that the effort started by the FAA ought to be more vigorously pursued, namely, that of prescribing regulations which have the effect of law so as to assure minimization of noise and make the operation more tolerable to the community.

And thirdly, I think that the Federal Airport Aid Act ought to be implemented and employed in aiding those communities where courts may determine that the operations from their airport have resulted in damage requiring payment for a taking.

I think in summary, Mr. Pogue, those provisions related to any mechanism that the Congress might choose to employ would aid immeasurably in this situation. I stress the first two of those because they, to my mind, are the areas where the preventive measures can be taken.

Mr. POGUE. Following that, Mr. Hill, let me ask, does the FAA feel that additional authorization in the way of legislation is necessary or desirable in order to equip the FAA adequately to make regulations for dealing with aircraft noise? And if you do, do you intend to ask for it?

Mr. HILL. Yes. We think there are some improvements which could be made, but they are not entirely the same as those Mr. Goldstein refers to.

First, I assure the committee the FAA does not intend to ask for any authority to participate in the payment of damage claims or the acquisition of noise easements. There is first the Keating bill which would authorize the agency to engage in research. As we informed the Senate committee, we think we have considerable authority in that field, but the Keating bill certainly wouldn't hurt us any and would show us that Congress is behind this research which I think, in the long run, is the only solution we are ever going to have to the noise problem, that is, technological advances.

We also think there could be an amendment to the Federal Aviation Act to authorize us to enact safety regulations for the protection of persons and property on the ground. We now have such a provision in the act which says that we can enact air traffic regulations for this purpose and we do. Our noise abatement departure regulations are based on this. But hopefully someday this research will amount to something and then we want to be in a position to require these devices, whatever they may be, on aircraft engines. Now we can require any modification of an aircraft engine for safety purposes. We would like to be able to require any modification necessary for noise abatement purposes, too.

We would also like the Federal Airport Act to be amended to authorize us to require zoning for noise abatement purposes around the airport. At present all we can do is urge communities to do so.

Those are three things that occur to me. I have to speak personally on this because, as you know, an Agency legislative program has to clear the Bureau of the Budget, but if everything goes well, I hope all three of those will be placed before you next year.

Mr. POGUE. Mr. Stephens, do you have any comments to make on this general area?

Mr. STEPHENS. I don't think I have anything to add.

Mr. POGUE. Any other panel member?

Mr. STICKEL. I would like to say, as far as zoning is concerned, preparatory to coming here today it occurred to me, and I am speaking only for myself, I believe the Federal legislation having to do with highways and extending aid to the States and municipalities in the construction of highways, had a provision in there which gave an additional percentage—I have forgotten whether it is half of 1 percent or some such percentage—to those States who adopted legislation which limited billboards along such highways.

Now, it seems to me that if some such legislation would give, by way of a bonus to States or municipalities who do this in cooperation with the FAA, that might be a more salutary way of putting it than to say you can't get any airport aid unless you rezone. I think that some consideration should be given to, and maybe this committee could investigate how that highway program has worked out with the bonus that they gave for the elimination of billboards.

Mr. POGUE. Mr. Williams, I was wondering if you could comment on whether you see it feasible in any way for the Federal Government to aid in securing or causing to be secured real metropolitan area zoning in those numerous cases where, because an airport is in two counties, or in one county where the city served is in another, it is difficult now.

Mr. SPENCER WILLIAMS. Well, this has been touched upon earlier, and certainly the Federal Government would be acting properly to encourage this type of activity.

However, in California it could not be done without very possibly a constitutional amendment, and to have the FAA require this as a condition would be very unfair to California or to other States which could not, as a matter of law, comply at this time. I think the idea is good but it is very difficult to enforce at this time.

The CHAIRMAN. Did you have to get a constitutional amendment in California for the urban renewal program?

Mr. SPENCER WILLIAMS. I believe so. I am not positive of that but we have home-rule provisions in our State constitution and to allow the State legislature to superimpose State zoning on the home-rule concept of cities and counties I think would require constitutional amendment.

(The following letter and attachment were received in connection with the preceding paragraph of Mr. Williams' statement:)

COUNTY OF SANTA CLARA,
OFFICE OF THE COUNTY COUNSEL,
San Jose, Calif., January 8, 1963.

Hon. OREN HARRIS,
Member of Congress,
House Office Building,
Washington, D.C.

DEAR CONGRESSMAN HARRIS: I would like to correct an erroneous statement of the law which I made during the hearings on aircraft noise abatement last December.

During the testimony of the legal panel, there was discussion that the Federal Government might require certain zoning around airports for the purpose of minimizing noise damages and make compliance a condition to Federal aid. It was also stated that in areas where several political jurisdictions were involved, States could establish area zoning agencies to cut across local jurisdictional boundaries and impose the desired zoning measures. At that time I stated that would require a State constitutional amendment before such area agencies could be created in California. I still believe this to be the case. You asked if a constitutional amendment was required in California for community redevelopment activities and I indicated that, while I was not sure, I thought it was.

A review of the California law indicates that a constitutional amendment was not in fact required but that a comprehensive community redevelopment law has been adopted by the legislature without the need of such an amendment. The redevelopment law in this State does not, however, grant the type of extraterritorial jurisdiction to local agencies discussed in connection with airport zoning, nor does it establish any super-State agency for the use of community redevelopment powers. The law provides that in event a redevelopment plan embraces more than one local agency, it may be implemented only through cooperation of the local agencies concerned. A copy of section 33333 of the California Health and Safety Code which concerns this cooperative arrangement is attached for your information. It is my opinion that this is also about as far as the California Legislature could go to provide for comprehensive airport zoning among the various local agencies. Furthermore, since frequently the operators of airports totally lack any power over zoning, I believe it would be unreasonable and grossly unfair to prejudice their entitlement to Federal aid because of the failure of some neighboring local community, over which it has no control, to adopt prescribed zoning measures.

I appreciated the honor of appearing before your committee, and was impressed both by your courtesy as chairman and by the keen grasp of the many ramifications of this problem which you and your committee evidenced by your penetrating questions.

Very truly yours,

SPENCER M. WILLIAMS, *County Counsel.*

HEALTH AND SAFETY CODE—SECTION 33333

AUTHORIZATION FOR REDEVELOPMENT OF AREA BY ANOTHER COMMUNITY: APPROVAL OF PLAN

By ordinance the legislative body of a community may authorize the redevelopment of an area within its territorial limits by another community if such area is contiguous to such other community. The ordinance shall designate the community to undertake such redevelopment. The community so authorized may undertake the redevelopment of such area in all respects as if the area was within its territorial limits and its legislative body, agency, and planning commission shall have all the rights, powers, and privileges with respect to such area as if it was within the territorial limits of the community so authorized. Neither the legislative body, agency, nor planning commission of the community so authorizing shall be required to comply with any requirements of this part except as set forth in this section. Any redevelopment plan for such area shall be approved by ordinance enacted by the legislative body of the community so authorizing.

Mr. POGUE. Mr. Hill, I hope this is not too strong a question. What do you envisage in the way of authority to regulate, to issue regulations concerning noise? Would that go as far as the procedures I think are now in effect at one of our important airports, requiring jet aircraft to undergo a noise test on the airport and restrictions of certain runways using that airport or something of that sort? I am trying to get illustrations.

Mr. HILL. I do not think we can ban the use of aircraft just because they make noise. We are entitled to refuse to certificate an engine if we do not think it is safe. But as I read our title 6 of the act, I do not think we would have authority to refuse to certificate an aircraft or engine just because it made too much noise.

Now, on the subject whether we could refuse to permit aircraft departures or arrivals at certain hours, yes, I suppose we could. We could refuse to permit them to use the navigable airspace to approach or depart at certain hours. But as I said this morning, we do not, and we do not think we should, because we think it is a local problem—whether it wants to use its airport at night or not.

Mr. YOUNGER. Mr. Moderator, I would like to follow through on one question with Mr. Hill. Did you read the statement of the Administrator the other day about the requirements for zoning?

Mr. HILL. I was here when he spoke on zoning, yes.

Mr. YOUNGER. Do you remember the point that he raised about the advisability of making zoning requirements which might interfere with the purpose of the act, which was to create airports, that it would stop or might stop the program—and whether it would be advisable to do that?

Mr. HILL. Yes, he mentioned those things. But I thought his conclusion was that we ought to present it to the Congress. It is a difficult subject. As I recall, he mentioned several other problems.

In the first place, zoning is not going to help the presently existing estimated 15 problem areas. It is just going to keep new problem areas from arising. And, as has been mentioned here today, it might not help situations where the airport jurisdiction is not the same as the zoning jurisdiction. But the fact that there are places which it might not help should not prevent us from requiring zoning in the places where it will help.

I believe that at the present time jets are used by carriers into 62 airports in the United States, and within the next several years, we believe that carriers will be using them into 129 airports in the United States.

So we are going to have noise problems coming up at new airports.

Then, in addition, the Civil Aeronautics Board is going into a regional airport investigation in which they are inquiring into the value of the concept of regional airports, and if they go very far on that, it means that some existing airports will be shut down, and new airports will be built at other places and will probably be served at least by small jets.

So I think there is a lot of value to zoning.

It is not going to be a final cure to all noise problems, but I think it could prevent this problem from arising in many, many new places.

Mr. YOUNGER. Well, I gathered from his testimony the other day that he had some reservations as to whether he would recommend legislation in that field.

Mr. HILL. He does have some reservation, sir, but I think on balance he intends to do it.

Mr. COLLIER. Mr. Hill, if I may—may we take a hypothetical case, where it could be established to be both safe and economically feasible to require that a jet from a given airport pursue a straight line to an altitude of 2,200 feet—this would be in connection, of course, directly with this problem. Who would have the authority to hand down this regulation at a given airport, and who would have the authority to enforce it?

Mr. HILL. The FAA, sir.

Mr. COLLIER. And they have that authority presently?

Mr. HILL. Yes, sir; and they do so.

We have special noise abatement regulations which in substance require that at Los Angeles, Washington, and Idlewild, and then we have a general regulation that authorizes each individual airport to develop its own noise abatement departure procedure, and those are in effect at many airports around the country. And generally they do say that. They say that the airplane will climb out to 1,500 feet as soon as practical, for noise abatement purposes.

Mr. COLLIER. Recognizing that we have to deal with the economic problem of the airlines as well as the operational problems of the airports, in the case specifically of O'Hare Field, which in many respects is unique from the standpoint of the noise problem, the specific problem there is created by the fact that planes that take off stand out or begin to bend or turn over the highly populated, totally residential area of Park Ridge.

Now, if it were found to be feasible, as I say, and safe for these planes to take off in a straight line and reach an altitude of 2,000 or 2,200 feet before they begin this fanning process, or this turn, and this could provide a great degree of solution to the problem in this area—recognizing again that a total solution is out of the question—would the FAA then entertain an investigation of this particular process and enforce it if it were proven to be economically feasible as far as the airlines are concerned and reasonable as far as the operational requirements were concerned?

Mr. HILL. Without specific reference to O'Hare, I would say, "Yes" we are always willing to go into the question of whether the existing noise abatement departure procedure can be bettered. I understand that at O'Hare there may be some traffic problems which prevent a plane from going straight out.

Mr. COLLIER. Well, making exceptions for those problems that exist—because they could not be a constant problem, certainly—this is within the realm of reality.

Mr. HILL. For us to change the procedure and find a better one?

Mr. COLLIER. To establish a procedure reasonable within keeping of the suggested requirement that the jets come in and reach the 2,000-minimum altitude before fanning out over the residential area.

Mr. HILL. Generally; yes. As a matter of fact, the reason why we do not have specific regulations for every airport, the reason why we have one general authorization for each local airport control area to formulate its own, is just so we can keep changing them from time to time as better methods are found, without having to go through all of this business of notice of proposed rulemaking and publication in the Federal Register.

Mr. COLLIER. I won't belabor it now, but I will pursue it further, I assure you.

Mr. POGUE. Mr. Tondel is asking for the floor.

Mr. TONDEL. In connection with the discussion of limitation of use of airports at certain hours, it occurs to me that the CAB should also be in the picture, because of the requirement of adequacy of service.

Mr. POGUE. Mr. Stephen.

Mr. STEPHEN. Yes—may I add something to what Mr. Tondel just said relative to the questions being asked by Mr. Collier.

I think the CAB almost certainly would have to be brought into this sort of thing, particularly for this reason.

If I understood the question, and Mr. Hill's response, it would not be correct for us to suppose that the FAA, up until this time, or now, gives any consideration in formulating its noise abatement procedures at airports to evidence on the economic effect on the airlines in following these procedures.

Now, am I correct in that, Mr. Hill? I think I am. But don't let me overstate it.

Mr. COLLIER. That is not the testimony we got from either Mr. Boyd or from Mr. Halaby on the opening day of this meeting, because they very definitely and I think properly recognize that we have to take into consideration the economic feasibility involved.

Mr. STEPHENS. Yes; I understand that. I understand Mr. Halaby has made that statement previously, that we must "consider" these factors.

My point is that, as I understand it, until this time, in the formulation of the general airport noise abatement procedures which Mr. Hill has referred to, there has been no specific evidence taken in any of those matters as to what the economic effect at a given airport would be on the airlines carrying them out.

Now, I am not suggesting that before such noise abatement procedures are established by FAA, that there ought to be that kind of evidentiary hearing—although it is true that the cost to the airlines in following these procedures runs into the millions of dollars.

The fact is that we do not actually know the exact figure at the moment ourselves. We do have underway a study which would disclose what those costs amount to—our best guess as to what they amount to. But I do not think the airline position in any way rests on the fact that because it costs them money to do this, they do not want to do it. Quite the contrary. We do expect to do it, regardless of the fact of cost. But there does come a time, there comes a line—you must cross it sooner or later—at which point the CAB must certainly become involved in this determination, because of the simple fact it not only has an effect on the airlines' economics, but on actual scheduling.

There is a point at which these procedures, such detail and such fineness of procedure, intrude a very substantial time element in the clearance from airports. Particularly as jets go over into supersonic, there comes a time at which the whole answer to the economy of operation turns on whether you can keep that airplane in the air a sufficient amount of time and serve the public in the process.

Those questions, it seems to me, are outside of safety. They are over in the economic area of the CAB.

Mr. HILL. I have to agree with that. Economics is involved. In a way, it is involved at O'Hare. I do not want to get involved in being cross-examined on O'Hare, because I am not really an expert on it. But I understand one of the problems there is that since Midway was closed, all the planes are now going out of O'Hare, and there is such heavy traffic, a least at some hours of the day, that everybody cannot go out in a straight line.

For example, if a jet were following a propeller aircraft, it would run over the propeller aircraft. So some aircraft must turn off, all cannot go out in a straight line. There is where economics enters in. If the departure rate were slowed, some of the departing airlines would have to sit and wait.

Mr. COLLIER. I did qualify the question where I said where it was economically feasible, and where it would not present a safety problem.

Mr. POGUE. Mr. Stickel.

Mr. STICKEL. I would like with your permission to ask Mr. Hill if he can answer the question, whether assuming you impose a restriction on the extension of airport A, under condition that zoning be adopted, and assuming a municipality does comply with those suggestions, will the FAA, in an attack on that ordinance by a local citizen, support the municipality in the reasonableness of the ordinance; and second, if the ordinance is set aside as a result of court action, will the FAA withdraw aid from that airport?

Mr. HILL. As to your first part of your question, I cannot commit the agency, but as an individual I will say I certainly think the agency ought to get in and help you, if that ordinance is attacked.

Now, I missed the second part of that.

Mr. STICKEL. Assuming it is set aside by the highest court in the State as being an unreasonable act, will you withdraw aid from the airport?

Mr. HILL. Well, here again, I cannot commit the agency, but I would say that that would just return us to the situation where we new are, where we are granting aid where there is no zoning.

And although zoning is very desirable, I do not think it is more desirable than all the other purposes of the act, combined.

Mr. POGUE. Mr. Stickel, I would like to ask you another question.

Should the Federal Government, through changes, where necessary, in its present programs regarding public housing, urban renewal, financial assistance, home construction, and perhaps other areas, impose conditions more generally because of the increasing importance of this noise problem, conditioning the Federal aid to adequate local activities and assurances, including zoning and whatnot, to cover noise abatement procedures?

Mr. STICKEL. As long as the aid has followed the lines of public assistance in the planning and zoning problem, and in urban renewal, where they require a developable or workable plan, yes, I agree that they should make those conditions. But I think, as Mr. Hill has indicated, that you have got to take into consideration the extent to which the municipality can legally comply with the conditions which are imposed.

It would seem to me to be unfair to a municipality which is, after all, a creature of the State, and derives its power from the State enabling legislation—it would be unfair to insist that they adopt legislation which they cannot constitutionally adopt as a condition for getting aid.

I think, as Mr. Wilner has indicated—I think that this whole problem is one of cooperation. And I think our chairman has indicated that. I think there is real need for further cooperation between the Federal Government, the State, and the local municipality. And I believe that the cooperation which has resulted in the planning assistance program under 701 has proven to be very successful.

I think if the Federal Government comes in and lends their assistance and their expertise and so forth to these local communities and points out the need and helps them in these problems, I think you are going to get further that way than just doing it with a big stick.

Mr. POGUE. I think everyone would agree with the fairness and objectivity of your comment that it is unreasonable to expect a municipality to do something it cannot do legally. That leaves us with quite an area, however, where there is no answer whatever.

Mr. STICKEL. That is correct.

Mr. POGUE. Now do you have any additional thought on how this no man's land is to be covered? Is that the area where, through encouragement and education and activity at the State legislature level, you think the remedy is going to ultimately come?

Mr. STICKEL. I think, as I have indicated, in the planning program, and in the urban renewal, when the Federal funds were available, and when the necessity of enabling legislation, to pass enabling legislation, to take advantage of that assistance was made known to the State legislatures, we have gotten, as municipalities, a lot more power than we had before. That is the area where I think education and cooperation would help.

That leads into your last question, which I think may be one of the solutions.

Mr. SPENCER WILLIAMS. May I comment briefly?

This thought has just come to mind. It may have no value whatsoever. But it seems to me unreasonable that the Federal Government would give financial assistance to a land developer who might

later turn around and sue the Federal Government for damages due to operation of aircraft over the property in question.

Perhaps in these situations the Federal Government, as a condition to Federal assistance, could require the borrower to execute a navigation easement, so that he has waived his right to claim damages for overflying the property.

Mr. POGUE. General Kuhfeld?

General KUHFELD. I think, Mr. Pogue, you have hit on something that is essential and that is your education program. I know that within the Air Force, if you are setting up a new base, we know you are going to have jet airplanes. We make a definite effort to let the people know ahead of time what they are going to expect, and why the noise is going to be there, and why it cannot be eliminated entirely.

As a result, we find that if you have done that kind of an educational program in the community, you get far fewer complaints. Peculiarly enough, we will make analyses of complaints that we get in, in connection with noise, for instance, and in many instances you will find you have 100 complaints, and then you go down and sift them out, and you find 62 are from the same fellow. You just get some individual that keeps on complaining and complaining. And you find that the majority of the complaints you have are from one individual. So that numbers do not really count.

Mr. POGUE. Mr. Shelley.

Mr. SHELLEY. Mr. Moderator, Mr. Chairman, my big difficulty here brings me back to my typical airport operator, perhaps out in the Middle West—I don't know where he is. All of the suggestions are very nice, except so far as he is concerned, he is stuck today with a heavy financial responsibility. And everybody is making suggestions except as to how to help him out.

The suggestion of zoning, for example, to some of us, at least, means merely a polite way of saying as a requirement to Federal aid we will make you take some more property, and that goes on your bill—and we have been told pretty plainly that the Federal Aviation Agency will not move a finger to alleviate that situation.

The fact is today, on the basis of what has been said today, if an airport operator wants to put in a new runway or an enlargement of an existing runway, he can figure the cost of construction is so much—and I can come to Washington and get a grant maybe up to 50 percent of that cost. And I am willing to do that.

But on top of that, I add that much more in the form of either claims for a taking or a requirement that I have to zone, which in effect is a taking, or something of the sort—I have got to add that to my cost. Now, that is what he faces.

I do not know the answer.

I am calling attention to the fact that is a realistic situation which every airport operator will face whenever he is extending an existing runway or building a new runway.

I do not know the answer, except insofar as it lies in the AOC's suggested bill. But that is from our standpoint the real problem.

Mr. GOLDSTEIN. Mr. Moderator, I just think I should point out by way of wonderment whether Mr. Justice Douglas would have written his opinion in *Griggs* as he did if he had known that the Federal Aviation Agency was not contributing to the cost of air easements.

He says very clearly in his opinion that is an allowable cost.

Mr. YOUNGER. Mr. Moderator—Mr. Halaby gave us an example the other day of a new runway that cost $6 million, and the operator wrote to him and said:

> It is finished, but we will not open it unless you guarantee to stand pat with the expense caused by suits if we allow the jets to land.

Mr. SHELLEY. Mr. Younger, the situation I fear more is that they are saying, "We won't even start building."

That is not helpful from the standpoint of having a good, sound, unified national aviation system.

Mr. STRUNCK. I would like to add one comment to what Mr. Shelley has stated about zoning and taking and the obvious effort to transfer the problem here back to a local community. We have talked about O'Hare Field and a jet operation so we may as well continue with that airport as an example.

If the airport operator, being the city of Chicago, is faced with an obligation of going out and acquiring easements which, under the case law in large measure it may well have to do, it would require a general obligation bond issue and it would be my own personal thinking that a voter who had a choice between no jets and more bonds, would perhaps vote for no bonds, knowing full well that they may not have the jets because the FAA has imposed a condition in a grant agreement that would in essence require the acquisition of avigation easements.

Mr. SNOW. This has nothing to do with the law, but there has been a tremendous amount of talk of jets here. Jets are a problem, particularly military jets. But in our experience, we have found that some types of propeller-driven airplanes, under some conditions, are a worse noise problem than jets. I do not think we ought to characterize jets as being the only villain.

Mr. POGUE. Now, in this area we are discussing, the last point I wanted to inquire about was this.

In several recent legislative proposals there have been thoughts of establishing in one case a commission on metropolitan problems, and in another case there was a Department on Urban Affairs.

Would there be advantages, Mr. Stickel, in having a central information center or clearance house for this type of problem, with research functions established in it, as to how the problem could be met and cured, or should we undertake to develop any such thought as that, and if so, is the function something that should be emphasized and perhaps implemented with some legislation?

Mr. STICKEL. Well, I personally feel—again, I am talking for myself—that there is a very definite need for such a department.

I feel that most of the municipalities, particularly the smaller ones—and while we have all the large cities, there are a tremendous number of small cities which do not have the facilities for all this planning assistance, for all this expert advice on noise and all these other areas. To go out and put in your budget $4,000 or $5,000, $10,000 a year to hire these experts to help you draft a zoning ordinance, or banning law, and all this business, is prohibitive in most instances.

I think if there were available to municipalities the expertise of the Federal Government and so forth in these areas, and there was the place to which you could turn and get this information and advice

and help and assistance, I think it would help the situation tremendously.

I know in my own State, Governor Hughes is presently thinking very strongly of establishing such a department, an executive department, in the State government.

I think his suggestion has been well received. I think this would be a step in the right direction.

Mr. POGUE. Do you have any comment on this, Mr. Hill? Anyone else?

Mr. SPENCER WILLIAMS. Yes. I believe that the FAA has already set up and could very well handle this program without the necessity of creating an entirely new Federal department. They are in the picture. If they had to be given some extra powers, perhaps that would be appropriate. But the establishment of an entirely new Federal bureau for this would be unnecessarily expensive.

Mr. WILLIAMS. With all this talk about Department of Urban Affairs, Congress has already killed that snake.

Mr. POGUE. Are there any other comments on this subject?

Mr. SNOW. I think it is terribly important that nobody has given credit to NANAC, which at least from where we sit does an excellent job. The FAA does. Then you have the State aeronautics department in most States. Between them, I think they do a pretty effective job.

Mr. POGUE. Now, panel members, that concludes the central areas that we are proposing to cover, except that we were going to give the panel members an opportunity to bring up at the conclusion of this discussion any new ideas that any of them have developed which it might be thought would be useful. That opportunity is before you now. So if any panel member wants to discuss something new, or some special approach to some of these problems, this is the opportunity to do so.

Mr. SNOW. About 15 years ago the National Association of State Aviation Officials foresaw this problem, when military jets were beginning to operate. At that time we queried every airplane and engine manufacturer and asked them what they were doing or what they were researching in the way of reducing the probable future noise. Everyone of them, unanimously, said that they were doing nothing. The reason they were doing nothing was that their paying customer was not the least bit interested in reducing noise. Their customer was the military.

Let's face it. Most of the new developments in the very high performance airplane come through the military first, because the military seems to be the only one that can afford to research them. I hope this research that the FAA is going to do can be tied in with the military, so we can get at this problem at its source.

General KUHFELD. Most of our work, as I tried to point out this morning, is suppressors on the ground. Your problem, I guess, is noise suppressors in the air. I understood that civil aviation has put in some $70 million suppressors, and they have come in service right now, airborne suppressors. One of their main complaints is the amount of revenue cargo that is reduced because of the weight of the suppressors. This is one of the problems. I think they have got them.

Mr. SNOW. I did not mean to criticize the military. But the military cannot afford to worry about noise. It has to get these things up and away in a maximum manner.

General KUHFELD. Your problem with airborne suppressors is that it cuts down the efficiency of the engine, and engine efficiency is all important when you get into a fighter or bomber.

Mr. SNOW. That is correct. But these machines that you develop are the ones that are eventually going to get into civil airports. And I think the research ought to be done right at the beginning.

General KUHFELD. Yes, sir.

Mr. CHRISTOPHER. Not to prolong this, but I have heard Mr. Halaby say on several occasions that one of the important criteria in the development of the supersonic transport, if that development is undertaken, will relate to sound abatement.

Mr. HILL. That is right.

Mr. STEPHEN. I might add something to that, Mr. Chairman. This is just going one step further with what Mr. Christopher quoted. I believe statements made have gone even further and said that if the form of noise abatement procedure which might be invoked against a supersonic transport were to include, for example, its nonoperation at night, in order to enable people to sleep, that that would be enough in and of itself to render economic operation of the supersonic commercially unfeasible.

Mr. POGUE. Mr. Chairman, I think except for some short concluding statement that I might make, that completes our part of it—unless there are questions.

Mr. WILLIAMS. Thank you very much.

Mr. Hemphill, do you have any questions?

Mr. HEMPHILL. I have two questions.

I notice, General Kuhfeld, that you echoed the remarks made by Mr. Halaby and some others in other panel discussions that we have a problem of education.

I just wondered if you subscribe to that theory that one of the difficulties in the education program is overcoming the fear people have when they hear an airplane passing overhead, when they read in the headlines about a crash in the vicinity, or someone being involved.

Do you think that is a factor?

General KUHFELD. Well, Mr. Hemphill, I think my experience has come from going into communities before we get an airport in there and discussing with the people and the leaders in the community, the civic clubs, what they can expect. They are just being realistic about it. They are only just worrying about the noise and the racket that is going to come, and the impact on their schools and so forth. I do not think that I could say that I found anything that was generated by mere fear of the fact that something was going over their head.

Mr. HEMPHILL. Well, a psychologist that came here yesterday, and quite a display here, was talking about that particular factor.

General KUHFELD. I presume it must be there.

Mr. HEMPHILL. I was just wondering about it, because I just wanted to know what percentage of the people really fear aircraft, and whether or not that was a factor in the complaints that you received.

General KUHFELD. Well, I would not say that I noticed that as a

factor in the complaints we received. They just plain kick about the noise and the racket, and that's it.

Mr. HEMPHILL. Thank you, sir.

I would like to direct my next question to the gentleman from Chicago. I asked this question a while ago. The thing that has worried me about this investigation, or these panel discussions, is the Congress has two capacities, as I see it—one to investigate and the other to legislate. What legislation could be proposed to us that would be any panacea of any kind for the problems that we face in this noise abatement area?

Mr. SHELLEY. I might say, Mr. Conway has on his desk some bills which the Airport Operators Council has drafted, and has not given publicity to them up to today—this is the first time we have mentioned them publicly. We are offering them as a suggestion, not as ideal bills, not necessarily as the only solution, but the best one we can arrive at to cover our own particular problem.

I might say I have asked Mr. Conway to give copies, not only to members of the committee, but to all members of the panel and I would like to take the opportunity to say I saw the president of the Airport Operators Council, Mr. Belford Brown, of San Francisco, at lunch, and he advises me that he intends to send copies of those bills personally to the heads of at least a number of the airlines and try to get their comments on them.

Mr. HEMPHILL. You feel that legislation can effect at least a partial cure?

Mr. SHELLEY. Well, legislation could be entirely a cure for our problem, which is a financial problem.

I would say this: From the general standpoint—and I am speaking personally—it is based on what I have heard—I feel that after you get all through the manufacturers and the airlines doing all that they can, and I believe they will try to do all they can, to suppress noise, there will be left a residual noise problem—it may be larger, it may be smaller—but there will be at least a residual problem. And not being a technician, I do not know how big it will be.

I might say from the court's standpoint, that without getting into whether you talk taking or noise nuisance or tort or what have you, I am convinced personally that when a man is really damaged by the noise, the courts will find some way of affording relief. I am also convinced it won't be by way of enjoining the operation of our scheduled airlines in or out of our airports. But the relief will be in the form of dollars and cents. Unfortunately it is a fact. When it comes to our standpoint, the question is: "Is the dollars and cents burden going to be borne by the local real estate owner in taxes, or is it going to be borne by the Federal taxpayer generally throughout the country." We feel that the latter is proper public policy. But that is a question of public policy for your decision.

Mr. HEMPHILL. Thank you.

Now, one final question. I would like to address this to the moderator.

I believe General Kuhfeld quoted from some decision in which he said suffering damage was not sufficient to give relief—I assume some tort must have been committed. I was somewhat worried about that statement. I went back to my office and I looked up the general

definition of damage, and I find that it means injury, it means loss, and one dictionary says it means destruction.

Now, I am just wondering whether or legally, as lawyers, we can subscribe to a theory that says that there can be damage and no wrong—the damage can come from a right way of action, from a right way of procedure, or right way of administration. And I was very much concerned.

I did not the find the case—I read the case which we had here. I did not get to read the other one—I could not get it in the time allotted to me.

But I am just wondering if that means that damage is a normal state of affairs under circumstances, or what it means. And I am somewhat concerned because of the limited background I have in this practice.

General KUHFELD. I think what they are talking about in the case of the damages, when they are mentioning the term "damages" is something you should pay for.

Now, we discussed this morning the *Batten* case. I think this same theory, this same approach, goes way back to *Richards* v. *Washington Terminal Company*, which was the case decided in 1914. If you want the citation of it, Mr. Hemphill, it is 331 U.S. 745. In this particular case, this involved smoke fumes that were directed out of a railroad tunnel by an exhaust fan. Well, the court said there was a taking because the fumes were directed against this particular property, and they allowed or made the government respond in damages. But then in discussing this whole thing—and I think this is what we are talking about when we say damages in that way—they said that you have to have some damages, peculiar damages to the individual, and not just a sharing in the common burden of incidental damages arising from local governmental activities, using an airplane, for instance. And so they come down and say that only damages not experienced by the public at large are compensable damages, or otherwise may be the basis for recovery of compensation.

So that here, in that early case—and I think this is about the same thing that was said in the *Batten* case that came down recently—the liability of the Government for payment of just compensation, responding in damages, arise only when the damages differ in kind and not merely in degree from those suffered by the public at large, from something that is a legitimate governmental activity.

I think that that is the context in which the case I quoted was using this term "damages" too.

Mr. HEMPHILL. I was somewhat concerned, because yesterday on the panel we had a detailed discussion of the impact of sound on a building. For instance, it comes through a window a lot easier than through a wall. In fact, sometimes the interior would have more sound than the exterior, because for some reason the construction would pick it up and magnify it. It just occurred to me that we could not say a man had no injury, could not say there was no fault if he did not suffer any damages until there was a noise, and when there was a noise he suffered the damages. It did not make commonsense to me that he could have the damage and not be any tort or wrong of some kind, whether a nuisance or some other kind; the sonic boom, because of some

negligence in altitude, or something of that nature, or perhaps some fellow doing what we used to call buzzing.

General KUHFELD. Well, we recognize, and the Congress, in their claims statute have authorized us to pay sonic booms, without regard to fault, because you have got to start with the idea that, for instance, a B–58 flying over 45,000 feet, practicing one of these missions, the pilot is not going supersonic just for fun, he is doing that because it is part of his job. So it is not carelessness, negligence, or anything like that. But if, for some reason or other, he gets down to 35,000 feet unavoidably, and we break some windows or knock bric-a-brac off the wall, or we damage some plaster that has been poorly put up in the first place, we are authorized to pay it and we do. And this is compensating the man, even though there wasn't a tort involved at all.

Mr. HEMPHILL. Thank you, sir; Mr. Collier?

Mr. COLLIER. Mr. Stephen, you referred rather briefly to the fact that when we get into supersonic commercial travel, that we would probably provide a restriction on this type of plane operating at night, is that correct?

Mr. STEPHEN. It certainly was not my intention to speculate as to what might be done, Mr. Collier. I simply said that if noise-abatement procedures for supersonic aircraft were to be prescribed by a lawful authority, and were to take the form I just gave, for example, of limiting or forbidding operation at night (which is a suggestion that is frequently made, because that is when people normally sleep) that this alone, in the opinion of those experts who have studied the commercial feasibility of supersonic aircraft, would be enough to make it not commercially feasible.

Mr. COLLIER. It was generally thought yesterday by the opinion of experts, which included—no reflection certainly on this group—experts in their own field, technical people, the engine manufacturers, that supersonic commercial travel was probably just around the corner, so to speak.

Now, if this is true, naturally it creates some fears in the light of the problems that exist with the turbofan and the straight turbo type of engine that is used on jets today. It would just seem to me that unless there are rapid strides made in finding a means to abate the noise of supersonic craft, that what we are going through now is an exercise in futility, and that this problem we are living with now and wrestling with today is going to be compounded many times over if this does come about. But I might go one step further and say that the experts all indicated some hope that there would be a means of suppressing aircraft noise, but none of them were too optimistic that there were going to be any great strides made in this direction.

I am concerned with this. I think we are all going to have to be concerned with this, in the light of the tremendous change in air travel and in aircraft in the recent years.

I just wonder what we are going to get into if this change comes about so fast that we do not have the means of coping with the noise problem.

Mr. STEPHEN. There is a great deal in what you say, certainly. This much is apparent—the Air Force, having had a great deal of experience in this area, would probably agree that the principal anticipated problem in the case of supersonic air transport would be sonic

boom. Now, if you construe the term "noise" broadly enough to comprehend sonic boom there hasn't been any solution even suggested for avoiding sonic boom.

General KUHFELD. There have been studies, but the state of the art is not even approaching anything.

Mr. STEPHEN. It has not even approached a solution to sonic boom, no. In other words, we have not solved noise as of this time, much less sonic boom. And you will experience sonic boom with commercial supersonic transport. The scale of damage, to use this term in a nonlegal sense, Mr. Hemphill, rather than the legal sense of injury, will probably make present so-called damage from noise appear trivial by comparison.

Mr. POGUE. May I inject a question?

General Kuhfeld, sonic boom occurs, of course, when the aircraft's speed exceeds the speed of sound. Isn't it true that you take off and climb before you reach that point?

General KUHFELD. Oh, yes. Well, our regulations require—for instance, a B–52 cannot go supersonic under 45,000 feet.

Mr. POGUE. In other words, Mr. Collier, it is possible to have an aircraft at an altitude that would minimize the shattering effect of sonic boom before it goes into that state of speed. Is that correct?

General KUHFELD. Yes, sir. But you still are going to have the noise.

Mr. COLLIER. The net result is that reaction is right down there where the people are on the ground, regardless of what the altitude, as I understand it.

General KUHFELD. Well, your overpressures—if your airplane is flying—a B–52, at 45,000 feet, that is a big airplane. Your overpressures are not going to cause any appreciable damage, except that the people are going to be jumping around to see what that was that cracked behind them—until they get used to it.

Mr. COLLIER. Then tell me what causes the situation that developed specifically at the Glenview Airbase a few years back—and I know it has occurred elsewhere—not being in any degree technical in this field, but I do know there was more than just a little shake, because there were walls split there.

General KUHFELD. Wasn't that one of those instances where, on a demonstration, an airshow, the man went supersonic just above the ground? Certainly this is absolutely prohibited in all our regulations. It is true if you go supersonic right down on the deck, there is going to be a lot of things done that you did not want done. It is a matter of how high up you are.

Mr. COLLIER. I just have one other question.

In most of the existing airport facilities—and I am speaking specifically of the existing runways—are they adequate for takeoff and landing of a supersonic plane? Now, I would have to identify which one. I would say the type that would be most likely used for commercial travel.

General KUHFELD. Well, they are making big strides in this. You have almost got to the point where, in the not so distant future, you will have almost vertical takeoff and landing airplanes, which can be supersonic.

Mr. COLLIER. So if this did come about——

General KUHFELD. Your problem of the amount of roll necessary to land or takeoff—they are being able to diminish that with different kinds of configurations of airplanes and different engineering devices. So I think your runways—you have to have a certain length runway for a certain airplane, depending on the speed. But this is within the state of the art, cutting down on the length of runway.

Mr. COLLIER. But when this happens, there would be no great need for expanding the physical area or the runways if, as, and when we get into commercial supersonic craft.

General KUHFELD. Depending on the size of the airplane. You are getting down to your shorter takeoff, shorter landing, shorter roll all the time.

Mr. POGUE. One other question that I might ask Mr. Stephen. This does not solve the problem. But isn't it likely, Mr. Stephen, when we do have supersonic transport aircraft, that for years, at least for an appreciable period of time, the schedules on which they are used are apt to be very long-range schedules? It isn't something that is going to descend on every airport in the country overnight.

Mr. STEPHEN. That certainly is contemplated. The International Civil Aviation Organization, which has had a study group working on this problem for some time, has also further supposed that the initial uses of airports would be limited to continental marginal airports. In other words, they will find their first use in oversea transportation, where you largely takeoff over water. The problem, of course, in connection with the takeoff, the question you asked a moment ago, is to get that aircraft to 70,000 feet, where it might be operating. You still have to get it down and up. There have even been suggestions of having it carried up to an altitude which it would be in effect launched for its normal en route operation. I did not hear the testimony yesterday. Perhaps this was covered. But the answer to your question is: Yes, it is certainly contemplated that it would be limited to long-haul operations, certainly in the beginning.

Mr. COLLIER. We were told yesterday not to hold our breath until we got to the point where you would move from here to there that rapidly.

That is all I have, sir. Thank you.

Mr. WILLIAMS. Thank you.

The staff members may have some questions.

Mr. Howze, do you have any questions?

Mr. HOWZE. Thank you, Mr. Chairman. I have just one thing that I would like to explore, and that is the doctrine that there is a point which, when you pass it, zoning becomes condemnation.

I think Mr. Shelley, Mr. Stickel, and others have discussed it. Am I correct in assuming that the rationale behind this anticipated holding that the zoning is for the benefit of the airport, rather than for the benefit of the surrounding community?

Mr. SHELLEY. I might say that you start with the proposition that any burden on the use of property is taking, unless you can justify it under the police power, which you know as well as I do is a broad, vague term.

What I said was that conventional zoning as I have known it—and I am talking about this higher and better use type of zoning—had been justified in New York State as a proper exercise of the zoning power

because it placed an equal burden on all the property within the zone for the benefit of all, equal benefit of all the property within the zone.

I raised the question, and I suspected the answer was going to be a bad one, but I raised the question—I have not researched it or briefed it—as to whether zoning of one area for the benefit of another area would be held to be justifiable exercise of the police power as zoning, as opposed to being construed as a taking of property within the zone, property rights within the zone for the public use, to wit, the airport.

That is my difficulty on that one.

Mr. HOWZE. But there have not been any cases where zoning around airports to the extent that it has been done—where that has been held?

Mr. SHELLEY. I would put it this way. To the best of my knowledge and belief there has been no such zoning ordinance adopted.

Am I correct, Mr. Stickel?

Mr. STICKEL. Well, no. There is—I might refer to a recent decision in Florida where the courts upheld airport zoning—and I am quoting from Mr. Goldstein's report—it is the case of *Waring* v. *Peterson* (1377 Southern 2d, 268, Florida District Court of Appeals, 1962)—where the validity of a local airport zoning ordinance enacted pursuant to the Florida airport zoning statute—which I referred to earlier—was upheld as a reasonable exercise of the police power as against the plaintiff's claim that it was void for vagueness, bore no relationship to the health, safety, morals, or welfare of the public, and constituted a taking of property without justification.

The ordinance in question regulated vertical development and the height of structures on properties within seven graduated zones around the airport, prohibited the erection of schools and churches within the area—within the aircraft approach zones, and also prohibited certain manufacturing and other operations which might interfere with the safe use of the airport.

Incidentally, the standards used in the ordinance were based on the Federal Aviation Authority criteria, and the model ordinance. That is the only case that I know of that has come squarely within it.

I have not read the full opinion, but I think the problem that you are going to have is whether or not the regulations that you attempt to enforce are solely to benefit one user, the airport, and not to benefit the entire community, because the zoning is supposed to be for the benefit and the general welfare of the entire community, not one particular user.

Now, there have been cases, and there are many cases, where the courts have said that simply because the zoning regulation does benefit a private owner of property, does not make it spot zoning, as long as the use of that property within the terms of the zoning ordinance is related to the general benefit and welfare of the entire community.

If the restriction is placed on property, and only for the benefit of a limited few, then you get into the question of spot zoning, and you get into the question of unreasonableness, and you get into the question of a taking.

Mr. SHELLEY. May I add something?

I think we would all hope that the 49 other States and the Supreme Court of the United States will follow the Florida precedent.

My difficulty can be illustrated by the question of court decisions as to whether or not an airport is a governmental operation or a proprie-

tary operation. Some States hold one way, some the other. But one of the real difficulties here is it is actually 51 different courts that you are talking about.

Mr. SNOW. This may help you. A few years ago we made a survey of all of the States. We found at that time that 330 airports in this country were protected by approach zoning under the Model State Airport Zoning Act.

Mr. HOWZE. I am concerned with land use zoning.

Mr. SPENCER WILLIAMS. There is a comprehensive law review article in a recent issue of the Harvard Law Review which discusses preserving open spaces, in which this point is raised and discussed.

It is whether there is an unconstitutional taking or a noncompensable exercise of the police power through zoning. The writer discusses many cases on this point.

Mr. HOWZE. Good. I appreciate your anxiety, particularly as a spokesman for the airport operators, and particularly in light of the *Griggs* decision, and the different interpretations our courts have a habit of applying to the same question.

But what I am trying to do is wring what I can out of the possibilities of zoning as an approach.

Isn't it quite arguable before a court that clearing out a certain area around an airport is at least as much for the benefit of the people who might move into it as for the airport?

Now, I should have prefaced all this by saying I have in mind a situation like Dulles International Airport out here, where you have practically virgin land, farmland—but you have none of the concentrated residential sectors which have given the people of New York and other communities so much trouble.

Would it not be possible to argue, at least, that this is not for the benefit of the airport operator, but it is for the benefit of anybody, based on the experience of people like yourselves, who have been concerned with this noise problem, and know how people suffer.

Do I get my point across?

Mr. SHELLEY. Mr. Howze, may I point out that from the standpoint of my typical airport operator, the difficulty is this.

Certainly the argument can be made and certainly you will find very many excellent attorneys who will say the argument in their opinion will be successful—you may find other attorneys who differ—certainly the argument can be made and I hope it will be made when the case comes up.

The difficulty is that the airport operators are being told to "Follow this path, we think it is constitutional. If we are wrong, we won't give you a penny help to bail you out of the situation you find yourself in." That is our trouble.

Mr. HOWZE. Well, as I say, this thing I have in mind is probably applicable only in a situation where you build a brand new airport out in the country.

Mr. STICKEL. Undeveloped land—because in the other areas you also have the right of the people, the owners of that property. And that property has a certain value, monetary value.

Now, if you are going to destroy its value by saying that it cannot be used, then you are taking something away from the individual property owner.

Now, you can only do that if it is going to benefit the general good. This is our whole concept of zoning.

Mr. HOWZE. Well, another thing which underlies what I have said is that—and mention has been made once or twice in the earlier panels—last July the Fairfax County Board of Supervisors, which makes the zoning decisions in Fairfax County, which is one of the two counties that Dulles Airport overlaps, granted several variances in whatever zoning program they have to allow both industrial and considerable residential encroachment on the airport.

Now, I know that prior to that—and I believe, Mr. Hill, prior to the decision in the *Griggs* case, the FAA had from time to time talked to the planning commission, which is the advisory group in the county, and urged upon them caution in granting these residential variances until the airport had actually opened, and the neighbors had had some experience with what it is like to hear these jets going in and out.

The planning commission recommended to the board of supervisors that they defer consideration of these applications until such time as there had been some experience.

The board of supervisors, by a one vote margin, I believe, voted the other way. And so now it will be rezoned. The value of the property was said to go from a few hundred dollars to many thousands of dollars the minute that vote was cast.

Now, putting that aside, could that have been avoided? And again, we get, I guess, into what can be reasonably argued.

I know Mr. Harris, Chairman Harris, put what he called a warning into the Congressional Record just shortly before that, in which he urged, without trying to tell the local board how to do its business—urged them to be cautious, took the same point of view that the FAA, I understand, has taken.

Now, we had no notion of participating as a committee in their proceedings in Fairfax. But as I understand, one or two people from the FAA did appear and try to urge this deferral of the consideration of it until the planes were operating.

Mr. STICKEL. Well, it certainly could be avoided.

Mr. HOWZE. I am wondering if this isn't a situation where perhaps the legislation about zoning that Mr. Hill has mentioned may be proposed next time.

If you could get that, and require it of local people, in a situation like that, might it not work?

Mr. STICKEL. Well, you could do that like they did in New York, with the Van Leer Act. They require that where any variance or special exception use was to be applied for in a local—before a local zoning or planning board, and there was a county, State or Federal improvement within a certain number of feet of such property, to which this variance was sought, that notice had to be sent, and they gave the Federal Government or the county or the State a standing in the particular proceedings so that the situation could be—the situation could be presented to the board before they granted any such variance.

Now, if that were so, and a person got a standing, like the FAA got a standing, and they acted contrary to what they thought, they could take the granting of this variance to court and say that the granting of the variance under those circumstances was unreasonable.

Now, you could do something by way of legislation of that type.

Mr. HOWZE. Well, I raise this only because of this benefit to the airport idea of Mr. Shelley's. I appreciate why he holds that idea. But I just cannot help believe that Chairman Harris and the FAA, at least before the *Griggs* decision, were not acting from more magnanimous motives than the fear of liability to the Government.

I think they had a genuine concern for the people in this noise-critical perimeter, whatever it might be, around the airport.

Mr. WILLIAMS. May I interrupt at this point?

Before proceeding further—we have a statement filed with the committee which, if there is no objection on the part of the committee, will be included as a part of the hearings.

This is a statement by Attorney General Lefkowitz of the State of New York. This will be included at the end of the hearings.

At this time I would like to acknowledge the presence in the room for the third straight day of three distinguished Members of the House of Representatives who are not members of this committee.

The reason I interrupt at this point is that two of these Members must leave momentarily to make an airline contact.

We have in the room with us Congressman Addabbo, of New York, Congressman Rosenthal, of New York, and Congressman Pucinski, of Illinois, all three of whom have been very faithful in attendance at these hearings, because of their interest of their districts in respect thereto.

While this is a little bit unusual, as Mr. Harris has indicated on previous days, the Chair would like to give any or all of these gentlemen an opportunity to make a statement if they so desire.

Mr. Pucinski?

STATEMENT OF HON. ROMAN C. PUCINSKI, A REPRESENTATIVE IN CONGRESS FROM THE 11TH CONGRESSIONAL DISTRICT OF THE STATE OF ILLINOIS

Mr. PUCINSKI. Mr. Chairman, I would like to congratulate both the chairman of this committee and the members of this committee for arranging this hearing.

From what I have seen in the last 3 days, we have had assembled here perhaps the finest authorities, or at least the best authorities in this whole field.

I must come to the conclusion, after listening to their testimony for 3 days, that Congress is going to have to grapple with this problem.

We are going to have to take the bull by the horns. There are some 30 million people in this country who are affected by the noise problem. And with all due respect, many of the witnesses have presented in depth the intensity of the problem, but I do not think any solutions have been presented here in these hearings.

For instance, the spokesmen for the FAA and the CAB practically told us that the only solution is to give people tranquilizers which of course I think is a rather silly approach.

The scientists told us yesterday that, if anything, the noise is going to increase before it decreases.

The local authorities tell us, "Well, gentlemen, all we want you to do is to pass laws to help us assume the financial consequences of

this great noise so that we won't have to do it all ourselves as local communities."

And that is where we are.

For that reason, I think that these hearings have proved extremely valuable, because they demonstrate, after 3 days, that the top experts in the field seemingly at least are without any solution.

Now, there are solutions. There is no question about it. I know that there are solutions. We saw these problems solved in Chicago, whenever there was real intense enforcement by the FAA personnel. But when the personnel goes the other way, then we have a problem.

It seems quite clear to me Congress is going to have to take on this thing—because so many people that I have heard at these hearings, supposedly experts in the field—and I am speaking now of the Government officials—in my judgment, Mr. Chairman, appear completely out of touch with reality as to the extent and gravity of this problem.

I think that these men have been in Washington too long, they have the idea that if you just stall this thing long enough, the problem is going to go away. But if they lived around the periphery of an airfield like O'Hare, and they had to see airplanes for 4 or 5 or 6 hours without interruption, every 45 seconds, every minute, come in at 12,000 or 15,000 feet, producing the thrust that these men have been talking about, at the altitude of anywhere from 800 feet to 1,200 or 1,500 feet, they would not treat the problem quite as lightly as they seemingly have.

We have a hospital in my district that actually has to give the patients sedation to control them. The hospital has to give its patients sedation because these patients think these airplanes are going to plow into the hospital.

If you do not think that is a problem—it certainly is.

For this reason, I would like to congratulate you and the chairman and the committee for assembling this excellent panel. I think every one of these men has been forthright and honest. I congratulate them for their frankness.

But it seems that now the Congress has to take the initiative. We are going to have to draft some legislation. And a lot of the vested interests, a lot of the special interests who have been trying to skirt around this problem are going to face up to the fact that progress does not mean virtually destroying the lives of some 30 million Americans.

That is what we have done with this noise problem.

I want progress, everyone else wants progress. But the fact remains that we have to start thinking in terms of solving some of these problems.

Nobody wants to impede safety standards, nobody wants to do that, nobody has ever suggested that. Nobody wants to hurt the economic standards. But the fact remains that in between we have some answers. I am hoping that the committee, having heard all of this fine testimony, is now going to start drafting some sound legislation that will set up some standards that for various reasons the agencies have avoided.

The people here have said in effect, "Give us the standards and we will enforce them."

So if that is what they want, that is what we will give them.

Mr. WILLIAMS. Mr. Addabbo.

STATEMENT OF HON. JOSEPH P. ADDABBO, A REPRESENTATIVE IN CONGRESS FROM THE FIFTH CONGRESSIONAL DISTRICT OF THE STATE OF NEW YORK

Mr. ADDABBO. Mr. Chairman, again I wish to thank you and Mr. Harris, chairman of the full committee, for giving us the privilege of sitting in with the committee at these hearings.

As one of the original sponsors of the resolution under which this special committee is sitting, I am happy to have seen the men participate in this panel discussion, because when we originally passed the resolution back home they said, "What have we got—just another study."

And I believe the last 3 days have shown it is not just another study. We have now gotten away from the people who lived with it and complain—and with the experts here today, and the last 2 days, all I can do is reecho what Congressman Pucinski said—that puts it back in our lap.

As long as it is going to be in our lap, I think one problem will be convincing the other Members of Congress of the seriousness of this problem. Maybe there are just 50 or 100 Congressmen who have this problem in their districts, and we must convince the others, so we will be able to put the proper teeth in the laws, if they are not there already.

And I believe our chairman, Mr. Harris, has stated that the laws are there and the teeth there for the FAA to work with. And if the FAA does not do it, we, as the Congress, who are the watchdogs of the Federal agencies, must take proper action as far as the agencies are concerned.

If the industry and airport operators do not fulfill the requirements upon them, Congress must then act, because those people who are around these airports—and in my district it happens to be 90 percent of the people who were there before Idlewild was even conceived—must be protected. They are taxpayers, they are Americans. They are entitled to the human rights to which we are all entitled.

Again, my sincere thanks.

Mr. WILLIAMS. Mr. Rosenthal.

STATEMENT OF HON. BENJAMIN S. ROSENTHAL, A REPRESENTATIVE IN CONGRESS FROM THE SIXTH CONGRESSIONAL DISTRICT OF THE STATE OF NEW YORK

Mr. ROSENTHAL. Mr. Chairman, thank you and thank Chairman Harris for the opportunity of permitting us to sit with you.

I for one, in my mind, have crystallized where we are going. I think I would like to direct my remarks particularly to Mr. Hill, because as I see it we are going to zero in on your Agency. I think the facts will indicate that.

Very briefly and concisely, I have concluded and I think the hearings have indicated, sir, that the pilots, as Captain Ruby has stated, have pretty much wrung out anything they can do with the noise abatement procedures.

I think the contribution the airport operators can make is inconsequential in the long-term pull. I think they have tried to do something, I think there is much more they can do.

But in the long-term pull, I think their contribution is limited in this area.

In the field of zoning, I think the future might offer some solution. But as far as Mr. Addabbo's district, and Mr. Pucinski's and my own, there is very little we can do. I think there are many serious legal problems connected with zoning. I do not think that is the real long-term solution.

It seems to me that yesterday afternoon, the representative of Boeing said that much can be done in engine design—and the representative of General Electric said that it can be done, "We can produce the research that would produce a more quiet engine"—"but who would we sell it to, who would want to buy it, why should we invest this money if there is no ready market for this engine?"

So apparently the answer lies in the research and production of a more quiet engine that is commercially feasible.

I would suggest to you, sir, that your Agency seriously consider a proposal for amending section 6 of the act to require, when you issue a certificate for an engine, that not merely safety, but that also a limitation on noise production of these engines be made a part of the requirement.

My own feeling is pretty much the same as my two colleagues who have, I think, rather eloquently and articulately expressed the view—that if you do not do it and do it in a hurry, we who are concerned with the problem—and more and more Congressmen every day are becoming intimately involved with this problem—are going to do it for you.

And if we have to do it, I think the consequences might be a good deal more severe.

Now, I do not blame the airlines themselves, because they want to write off their equipment, and they do not want to buy new equipment immediately. They have got to have a little push from some governmental agency. And if you do not do it, I think we are going to have to.

I think that all of us have concluded, my colleagues and myself, that the long-term pull has got to be done in engine manufacturing, and the FAA has got to wake up to the fact that safety and serenity are not inconsistent at all, and economic growth and serenity are not inconsistent at all, and that the application of some advanced, in-a-hurry research, the same kind that we are putting into the moon, getting to the moon, and putting into all other phases of American industry, has got to be done in a hurry.

And the fact Mr. Halaby said we are spending a million and a half dollars for engine research is just a drop in the bucket.

Sir, I voted for a $10 million aquarium in the District of Columbia. I have no regrets about it. I think it is a good thing. We did that partially so that fish could have a quiet place to spawn.

I think that for the perpetuation of the race as I know it at least in my district, they are entitled to the same thing as the fish—$10 million for the fish and $1.5 million for my people—there is no comparison.

So I suggest you take it to Mr. Halaby, and I am sure he will read the record of this—you better wake up in a hurry and do something about it, because if we have to do it for you, I think many of the people in the industry will have some regrets.

Thank you very much, Mr. Chairman.

Mr. WILLIAMS. May I say to my colleagues that I am sure I speak the sentiments of the other members of the committee when I express our appreciation to you for your interest and cooperation and your help throughout these hearings.

We, of course, hope that these hearings will result in eventual alleviation of the situation to some degree, at least, and we will welcome your continued cooperation when Congress reconvenes in January.

Thank you very much for being with us.

Mr. Conway, do you have any questions?

Mr. CONWAY. Yes, I have one for Mr. Goldstein.

In the Port of New York Authority against Delta case, what was the relief requested?

Mr. GOLDSTEIN. My recollection of the relief requested was to enjoin the airline from committing any further violation of the rules and regulations which are set forth.

Mr. CONWAY. Mr. Shelley, in those cases you recited, the complaints and the requests for money damages, have any of those cases gone to judgment, or do you know of any cases that have gone to judgment?

Mr. SHELLEY. Yes. The memorandum that was given me mentioned one airport—offhand I don't know, I can drop you a line and tell you—where 50 claims had gone to judgment. No, I was reading the pending claims. The pending suits and pending claims.

Mr. CONWAY. The ones that have gone to judgment, you have not any recollection of how much money is involved, the damages?

Mr. SHELLEY. Not offhand.

Mr. CONWAY. Mr. Hill, when a sponsor comes in for money grant on airport improvements, isn't there a representation made by each sponsor that they have already acquired the land and the necessary easements to fulfill the purpose of the grant if it were made?

Mr. HILL. Yes, but when they speak of easements, they speak only of the obstruction clearance easement, which goes out 2,500 feet.

Mr. CONWAY. Isn't there a case that holds those obstruction easements include noise easements, or aviation easements?

Mr. HILL. Not that I know of, sir. We haven't been requiring those. We do not think we have the authority to. It would have to cover a tremendous greater amount of ground than 2,500 feet.

You might have to go out 6 or 8 miles. And there are quite a few people that think that that is not within the purposes that we can spend money for.

Senator Magnuson, the chairman of the Senate committee, thinks so, for example.

Mr. CONWAY. He thinks you should not or you can?

Mr. HILL. Cannot. He wrote a letter to a constituent in March 1962 in which he said in part:

> However, the law specifically provides that no funds will be allocated to projects which are not directly related to safety, such as runways, high intensity runway lighting, and runway distance markers. Consequently the Agency is precluded by law from allocating Federal funds for the acquisition of land for the purpose of noise abatement.

Mr. CONWAY. One other question. I have here several reports of the Port of New York Authority's efforts to purchase, I thought it was, the land in Queens, and I heard it went into the millions.

Did they seek to purchase the fee, or did they seek to purchase easements?

Mr. GOLDSTEIN. I know of no efforts to purchase.

Mr. CONWAY. No. There was a study, I have been told.

Mr. GOLDSTEIN. Maybe Mr. Wiley knows. I do not. I do not know where this emanates from.

Mr. CONWAY. Mr. Strunck, isn't there some analogy between an aviation easement and the street easements that we have in most of the communities where people own the land under the street?

Mr. STRUNCK. Isn't there what?

Mr. CONWAY. Isn't there some analogy between an aviation easement and the street easements that are used in most parts of the United States to lay streets?

Mr. STRUNCK. Basically you can say that there would be—to cite Nicholls and Elliott on streets—you can impose within a municipality very many burdens upon the freeholders of the street without compensation that you cannot impose upon the person across the city limits in an unincorporated area. There you have generally only an easement for surface travel. In an avigation easement you would have an easement for travel——

Mr. CONWAY. These travel easements were not terrifically expensive, were they?

Mr. STRUNCK. Well, you are getting into a field that would vary with conditions. I personally have my own opinion on the value of avigation easements. I don't know whether this would be the proper place to discuss that. I know what has been done in the Chicago area on easements. In instances I do not think that generally anything is paid for an avigation easement. We have been getting easements around O'Hare Field over the past 3 or 4 years without purchase.

I do not know whether you want to go into the question of damages on this particular problem. I don't think that the damages are as large as some people seem to think. The Government has in the past adopted an affirmative policy to acquire easements and pay for them. Civilian philosophy has been largely the opposite.

The problem for acquiring easements involves eminent domain and part of the procedure is to make an appraisal and an offer.

Now, to a juror I think it would appear a little bit ridiculous to file a condemnation action and then go into court and try to argue before the jury that although you have a taking the damages are nominal and that is why your offer was $1.

As a course of procedure, I think it is much better in the long run if you transfer the burden of proof and let the individual seek his damages in a damage action where the burden of proving value of the taking is upon him.

This is but one way to approach the problem but I think it is preliminarily a good legal procedure.

Mr. CONWAY. Well, the record, I think, shows that the discussion of aviation easements is a possible solution of or a partial solution of this problem.

Mr. STRUNCK. I would say this. The situation with respect to the Port of New York Authority—it would differ with each airport.

Mr. CONWAY. We have no factual cases. That is what I am interested in. Nobody on this panel is aware of a community or a municipality going about and seeking aviation easements in the way that they must have sort of obstruction easements? Is that true? Are there any cases?

Mr. SHELLEY. Tom, you put me on the spot. Let me say frankly I know where one airport is that is embarking on that, and let me say also frankly I am not at liberty to give you the slightest clue as to where that airport is.

Mr. STRUNCK. Tom, the University of Illinois operates a municipal airport at Champaign, and to my knowledge the University of Illinois has over the past few years gone out and actively acquired avigation easements. But again you are in a rural area, where the question of values is different.

Mr. CONWAY. I have no further questions.

Mr. WILLIAMS. Mr. Pogue, I believe you said you had a closing statement.

Mr. POGUE. I have nothing further, Mr. Chairman, except, on behalf of all the members of the panel, to thank you for this opportunity and privilege of answering your questions.

(The statement previously referred to by Mr. Williams of Attorney General Louis J. Lefkowitz, of New York, follows:)

STATEMENT FILED BY ATTORNEY GENERAL LOUIS J. LEFKOWITZ

I was disappointed to read a report in the newspaper following the opening of the House Interstate and Foreign Commerce Committee on the jet noise problem that experts in the field had agreed that there was no major breakthrough in sight on noise abatement and that all had been done that could be done to reduce jet aircraft noise.

I could not agree more, however, with the statements made at the hearing that there should be no sacrifice of safety standards to achieve a solution of the problem.

However, some remedies have been suggested and one of these has already been undertaken by the Federal Aviation Agency. That is to require that aircraft using the 13R–31L runway at Idlewild approach over the military reservation at Fort Tilden, over the Floyd Bennett Airport, and then along the edge of the bay making a right turn onto the runway. Takeoff procedure would be the opposite.

In order to make such procedure fully effective, the Port of New York Authority, I am told, has extended the runway to the southeast by 3,324 feet, enabling the threshold of the runway to the northwest to be moved 2,600 feet to the southeast and away from the more populated communities.

This is commendable effort toward helping to relieve some of the noise nuisance but its very purpose is being defeated if reports coming to me from representatives of communities in Brooklyn well to the north and also to the west of the bay are accurate. These persons continue to complain that they are severely affected by aircraft which do not adhere to these routes, but continuously come over in distinct patterns penetrating deep into residential neighborhoods several miles to the north of the bay.

Certainly, if the flight patterns have been found acceptable by the FAA, adherence to the flight paths should be enforced through whatever action is deemed feasible and practicable by the agencies concerned.

I would also suggest that the committee give full consideration to restoration of the requirement that all aircraft carry underwing markings to permit ground identification of the airplane which may deviate from the approved flight paths. In keeping with generally accepted principles of vehicular identification and also with the firm requirements of the Federal Government up to the time when the noise problem assumed its present proportions, underwing identification should be required and it would be preferable if such requirements were regulated by the Federal Government.

Air transportation is, by its very nature, best suited to regulation by Federal law and authorities. The communities affected, however, must either be accorded affirmative and adequate protection by Federal regulation or, in the alternative, the vacuum will have to be filled by action on the part of State and local authorities. My office has been petitioned repeatedly on behalf of large segments of New York's citizens to use its statutory powers to bring injunctive action against the Port of New York Authority to abate the vast noise nuisance created by the operation of jet aircraft. Of course, I do not intend to take action which would go so far as to close down vital transportation centers, as I have heretofore had occasion to state publicly. On the other hand, consonant with my statutory authority, I would not hesitate if necessary to do everything possible to see to it that air traffic is conducted in a manner compatible with the physical well-being and property rights of the people living in the affected areas.

I urge the committee to take the initiative to procure the enactment of effective remedial measures on the Federal legislative and administrative levels.

Mr. WILLIAMS. On behalf of the chairman and the members of our committee, I want to express our appreciation to this panel and to the two preceding panels for their fine cooperation with this committee in furnishing this committee with what I am sure is every conceivable aspect of this problem.

Before adjourning, I think perhaps it would be well to say that in the past 3 days a record has been made which I feel sure will be studied for months and months, and perhaps even years to come in the search for a possible solution to the problem of aircraft noise.

I feel certain that, while that solution apparently is not in sight yet, that if the solution does come about, it might very well have had its genesis in these hearings.

With that, that expression of appreciation to you gentlemen, the committee will stand adjourned.

(The following data were submitted for the record:)

LOS ANGELES, CALIF., *December 28, 1962.*

Hon. OREN HARRIS,
Chairman, House Committee on Interstate and Foreign Commerce, House Office Building, Washington, D.C.

DEAR MR. CHAIRMAN: In connection with the hearings before the Subcommittee on Transportation and Aeronautics and the Special Subcommittee on Regulatory Agencies held in Washington, D.C., on December 4, 5, and 6, 1962, suggestions have been made that local legislative bodies should adopt zoning ordinances or regulations which would restrict the use of property in the vicinity of airports with the object of establishing and maintaining open areas or corridors adjacent to the airports. It is true that the rapid growth of metropolitan areas and modern advances in aviation have created problems and conflicts which have been matters of concern to national and local planning agencies. However, in our opinion, to attempt to solve such problems by means of land use ordinances or regulations would amount to a taking of private property and would, therefore, be prohibited by the Constitution of the United States unless just compensation is paid therefor.

The legal basis for our opinion is set forth hereafter in this letter and is submitted for inclusion in the transcript of the above-mentioned hearings of December 4, 5, and 6, or for such other use as you and your committee may deem appropriate.

It is well established, of course, that reasonable zoning regulations which promote the safety, health, morals, and general welfare of a community are a

proper exercise of the police power and do not require payment of compensation. It is equally well established that there are limitations on the exercise of the police power, and that when these limits are exceeded a taking results and payment of just compensation is then required, *Euclid* v. *Ambler Co.*, 272 U.S. 365 (1926).

Zoning regulations which have restricted use of airspace above land in the vicinity of airports to avoid aviation hazards (as distinguished from surface use restrictions) have become increasingly common in recent years. Where reasonable, such regulations have been held to be a proper exercise of the police power on the theory that promotion of safety of aircraft operations is sufficiently related to general welfare of the community. For example, the Supreme Court of Florida, in the case of *Waring* v. *Peterson* (137 So. 2d 268 (Fla., 1962)), upheld the validity of a zoning ordinance which imposed height limits on structures erected on land adjacent to an airport and which prohibited uses of such land that would produce smoke, gas, dust, or other air-polluting material which would interfere with vision or electrical communications.

Even in matters of zoning for the purpose of promoting aircraft safety, there is a limit to the restrictions which may be imposed by local regulatory bodies. For example, in the case of *Mutual Chemical Co.* v. *Mayor and City Council of Baltimore*, reported in 1939 U.S. Aviation Reports, at page 11, a statute which limited structures immediately adjacent to an airport to a height of 5 feet, was held unconstitutional by the circuit court of Baltimore, Md. Unreasonable restrictions cannot be sustained.

Zoning restrictions which do not have a direct and substantial relation to safety of aircraft operations cannot, however, be similarly justified as an exercise of the police power. For example, regulations which would prohibit residential development in an undeveloped area near an airport and restricting development to certain types of industrial or commercial use, or perhaps even to recreational uses such as parks or golf courses, could well deprive the landowner of the right to make the highest and best use of the property and thereby cause substantial monetary loss to the landowner. The community interests in health, safety, morals, and general welfare justifying exercise of the police power by way of zoning are not such as to justify the imposition of such restrictions on development without payment of just compensation.

The only reported court decision involving the validity of zoning not directly related to aircraft safety, of which we are aware, is the case of *Banks* v. *Fayette County* (313 S.W. 2d 416 (Ky., 1958)) in which the Kentucky court held invalid a zoning ordinance prohibiting commercial uses of property adjacent to an airport, while permitting other types of uses. The court rejected the argument, advanced to support the ordinance, that the congestion of people in the airport area created a risk of personal injury from aircraft accident. In holding the zoning unconstitutional the court stated that there was no evidence that the uses prohibited by the ordinance created a hazard to aviation. Obviously the court was not willing to permit the zoning power to be used as a device to enable the airport to invade recognized property rights of its neighbors.

The logic of the decision of the Kentucky court is, of course, applicable to prohibitions against residential use or against any use which does not create a hazard in connection with operations of the airport.

Safety of persons on the ground is a matter deserving of careful attention by local authorities and regulatory agencies. It may well be that optimum conditions for airport operations would require in some cases that open areas or corridors be maintained in the vicinity of airports to reduce the possibility of serious accidents and the resulting claims for damages. There would appear to be no reason, however, why the affected property owners should bear the entire cost of providing such conditions. It should be borne by the community in general, through the payment of compensation for the taking of property rights involved.

Recent court decisions have established the rights of property owners to be compensated for the loss of use and enjoyment of property caused by noise, vibration, and fear engendered by low-flying aircraft, *Griggs* v. *Allegheny*, 369 U.S. 84 (1962); *U.S.* v. *Causby*, 328 U.S. 256 (1946); *Highland Park* v. *U.S.*, 161 F. Supp. 597 (Ct. Cl., 1958); *Ackerman* v. *Port of Seattle*, 55 Wash. 2d 400 (1960).

In effect, the public authorities are required to acquire easements for aircraft flight over the affected land through the process of eminent domain (either through formal condemnation proceedings or, involuntarily, by payment of

damages in a landowner's suit brought on the theory of inverse condemnation) in which payment of just compensation is required. Moreover, it should be noted that determination of the amount of compensation required is based not on the present use of the land but on its market value based on future utility, *U.S.* v. *48.10 Acres of Land*, 144 F. Supp. 258 (S.D.N.Y., 1956).

Similarly, imposition, through zoning regulations, of restrictions on development because of the presence of aircraft amounts to the acquisition by the public agency of an easement in the affected property and requires payment of compensation.

This is made even more apparent in the fact that such restrictions on use, if upheld, would limit the future utility of the affected property, and the measure of compensation required to be paid for easements acquired under the theory of the *Griggs* and other cases above cited would be less. In other contexts, the courts have held that zoning regulations adopted to impose use restrictions on property preliminary to acquisition of the property through eminent domain proceedings amount to a taking without just compensation and are, therefore, invalid, *Robertson* v. *City of Salem*, 191 F. Supp. 604, 193 F. Supp. 441 (D. Oreg., 1961); *59 Front St. Realty Co.* v. *Klaess*, 6 Misc. 2d 774, 160 N.Y.S. 2d 265 (1957); *2700 Irving Park Bldg. Corp.* v. *City of Chicago*, 395 Ill. 138, 69 N.E. 2d 827 (1946); *Galt* v. *Cook County*, 405 Ill. 396, 91 N.E. 2d 395 (1950).

Therefore, it is clear that except in cases such as those involving reasonable restrictions on airspace use for the purpose of promoting aircraft safety, it is not a permitted use of the police power to take away from a property owner the right to devote his property in the vicinity of an airport to its highest and best use, whether residential, commercial, industrial, or otherwise. If safety and convenience of persons on the ground or other public interests would be served by the imposition of such restrictions, then just compensation for the loss of use and enjoyment must be paid. This principle has been applied in other areas. For example, in the case of *Vernon Park Realty* v. *City of Mount Vernon*, 307 N.Y. 493, 121 N.E. 2d 517 (1954), the New York Court of Appeals held unconstitutional a zoning ordinance which restricted commercial development of an open area in a business district to automobile parking and incidental uses, because of acute traffic congestion and parking conditions in the area, and where the highest and best use of the property was for commercial building.

It cannot be denied that property rights would be destroyed, interfered with, and acquired as the result of enactment of zoning ordinances of the type hereinabove discussed. Use of property adjacent to an airport, for residential or other purposes, so long as aircraft operations themselves are not interfered with, does not in and of itself impair the health, safety, morals, or public welfare of the community. If optimum public use of the airport requires maintenance of open areas, then compensation must be paid for the property rights acquired; acquisition under such circumstances without payment of compensation cannot be justified under the guise of an exercise of the police power. As Justice Oliver Wendell Holmes stated in his opinion in the case of *Pennsylvania Coal Co.* v. *Mahon*, 260 U.S. 393 (1922), at page 416:

"We are in danger of forgetting that a strong public desire to improve the public condition is not enough to warrant achieving the desire by a shorter cut than the constitutional way of paying for the change."

We trust that the foregoing information will be of help to you and your honorable committee.

Yours very truly,

WELLBORN, BARRETT & RODI,
By KARL B. RODI.

APPENDIX

Biographical Sketch of Orval R. Cook, General, USAF (Retired)

Aero, industry executive; born West Union, Ind., July 27, 1898; son, Owen E. and Eliza A. (Mathas) Cook; U.S. Military Academy, 1922; student Air Service Advanced Flying School, 1924. Air Corps Engineering School, 1930; Air Corps Tactical School, 1938; graduate, Command and General Staff School, 1939; married Minna Edwards September 11, 1925; children: Peyton E., Orval E., Benjamin H. Commands: second lieutenant, Air Service, U.S. Army, 1922; advanced through grades to general, USAF, 1954; deputy commander in chief, U.S. European Command, 1954–56; retired; present, general manager, Aerospace Industries Association of America, Washington, 1957; director, United States Life Insurance Co., Washington. Decorated: Legion of Merit; Distinguished Service Medal with cluster; Legion of Honor (France); Order of Merit (Italy), Associate fellow, Institute of Aeronautic Sciences.

Home: 510 Crosswoods Drive, Falls Church, Va.

Biographical Sketch of Leslie O. Barnes

Mr. Barnes was elected president of Allegheny Airlines, Inc. in April 1953.

He has been identified with aviation since 1937. Prior to joining Allegheny, he was executive director of the National Air Transport Coordinating Committee in New York, and, before that, was director of operations for the Air Transport Association of America from September 1946 to February 1952. During the period 1937–46, he was associated with American Airlines in Wilkes-Barre/Scranton, Buffalo, Cleveland, and Detroit, and served as Chief of the Air Traffic Control Center in Chicago and the third region of the Civil Aeronautics Administration.

Born near Elmira, N.Y., in 1917, Barnes attended the University of Chicago.

Barnes is a member of the Transportation and Communications Committee of the U.S. Chamber of Commerce; member of the Board of Directors of the Association of Local Transport Airlines; and chairman of ALTA Low Cost Plane Design Committee.

Biographical Sketch of Alan S. Boyd

The Honorable Alan S. Boyd was designated Chairman of the Civil Aeronautics Board by President Kennedy on February 10, 1961, for the year 1961 and again for the year 1962. Mr. Boyd took his oath of office November 16, 1959, as a member of the Civil Aeronautics Board, and was appointed by President Eisenhower for the remainder of the term expiring December 31, 1962.

Mr. Boyd has been a member of the Florida Railroad and Public Utilities Commission in Tallahassee. He was appointed to the commission by the Governor of Florida in July 1955. In 1956 he ran for and was elected to a full term on the commission and served as its chairman in 1957–58.

Mr. Boyd was born in Jacksonville, Fla., on July 20, 1922. He completed his formal education at the University of Florida, and the University of Virginia, where he received his LL.B. degree in 1948.

Mr. Boyd practiced law in Miami, and was appointed by Governor Collins in 1954 as chairman of a civilian committee for the development of aviation in Florida. He also served as general counsel for the Florida State Turnpike Authority in 1955.

He served as a pilot in the Troop Carrier Command in World War II from 1942–45, as well as in the Korean conflict. He has over 3,000 hours as a combat and service pilot.

He is a member of the American Bar Association, and is a Democrat. He is married to the former Flavil Townsend, of Jacksonville, and they are the parents of one son.

BIOGRAPHICAL SKETCH OF BELFORD BROWN

Belford Brown, general manager of San Francisco International Airport since April 1, 1957, is a native Californian. Born in San Diego on July 19, 1911, he attended San Francisco public schools and the University of San Francisco. His formal education included a 3-year course at Rutgers University Graduate School of Banking where he was president of the class of 1948.

Brown acquired 28 years experience in San Francisco financial and banking circles before being appointed airport manager. Because of the mushroom growth of air transportation following World War II, San Francisco voters approved bond issues totaling in excess of $55 million for airport expansion to keep pace with the growing industry's needs. This bonded indebtedness made it imperative that the airport be administered under a sound financial policy so as to meet the considerable costs for debt service in addition to operational expenses, and Brown's extensive financial background resulted in his being selected as airport manager.

In his 5 years of administration, passenger volume at San Francisco International Airport has increased by more than 50 percent, aircargo 65 percent, and mail by nearly 150 percent. Revenues have met all debt service requirements and operation costs and each year has seen a surplus—the 5-year total is in excess of $5 million—which has been used for airport improvements.

Brown's ability as an airport administrator quickly was recognized by fellow airport managers. As San Francisco representative to the Airport Operators Council—an international affiliation of airport operators—he was given important committee assignments in 1958 followed by election to the AOC Board of Directors as second vice president and first vice president in subsequent years.

Throughout his entire adult life, Brown has been an untiring civic worker. His services include president, San Francisco Junior Chamber of Commerce; director, San Francisco Chamber of Commerce for two terms; vice president, San Francisco Bay Area Council; director, International Science Foundation; president and director of the San Francisco and northern California chapters, American Cancer Society; president, San Francisco Center for the Blind; president, San Francisco Federated Fund; member of the National Board of Advisers, Small Business Administration; and board member of San Francisco's Centennial Commission.

A member of the nationally famous Olympic Golf & Country Club, his hobbies include golf, spectator sports, and the arts.

Brown and his wife, Betty, live in San Francisco with their two children, a son and a daughter.

Belford Brown was elected president of the Airport Operators Council in August 1962.

BIOGRAPHICAL SKETCH OF ROBERT M. CRISP

Mr. Crisp was born on November 22, 1916, at Fort Smith, Ark.

He received his commercial license as a pilot in 1940.

He served in World War II in the Air Transport Command; was discharged in 1946 with the rank of captain.

He became manager of the Fort Smith Airport in 1948, holding that position until 1958 when he became manager of the Little Rock Airport, which position he now holds.

For the past 8 years he has served on the Board of Directors of the American Association of Airport Executives, and was appointed president this year.

BIOGRAPHY OF NAJEEB E. HALABY

Najeeb E. Halaby, one of America's pioneers of the jet age, who has a long and varied career in all phases of aviation including Government, military, and private industry, was named principal aviation adviser to President Kennedy and Administrator of the Federal Aviation Agency on January 19, 1961.

Mr. Halaby is a pilot, lawyer, and financial consultant, a former Government official, and executive of industrial corporations. He was one of the original group which outlined proposals for the creation of the FAA and was a Navy test pilot for the first American-made jet airplane.

Mr. Halaby began his career in 1933 when, at the age of 17, he secured his student pilot's license. He later bought and flew his own plane. He continued flying, and in 1940 put his love for flying to practical use when, after civilian pilot training, he became a commercial pilot instructor for the then Army Air Corps. Later he joined the Lockheed Aircraft Corp. as a test pilot, and in 1943 he joined the Navy.

As a naval aviator, Mr. Halaby organized and established the Navy's first test pilot school and acted as the school's chief instructor. He established two aviation firsts as a Navy pilot. He flight tested the first American jet plane—the Lockheed YP–80—and later made the first continuous transcontinental jet-powered flight.

After the war, Mr. Halaby joined the State Department as an aviation intelligence officer, and later became a foreign affairs adviser to the Secretary of Defense. He was also first chairman of the North Atlantic Treaty Organization (NATO) Military Production and Supply Board and, in 1950, joined the Economic Cooperation Administration (ECA) as special assistant to the Administrator. He returned to the Defense Department 2 years later and served as Deputy Assistant Secretary of Defense for International Security Affairs.

Mr. Halaby's Washington service included responsiblities as vice chairman of the White House Aviation Facilities Study Group—the organization that recommended the creation of the Federal Aviation Agency.

Such was the quality of his governmental work that he was selected in 1953 by the U.S. Junior Chamber of Commerce for the Arthur Flemming award as the outstanding young man in Federal services.

In addition to his career in aviation, Mr. Halaby has been active as an attorney businessman, and financier. Until his appointment to the FAA, he directed his own law firm, N. E. Halaby & Associates in Los Angeles, Calif., and was president of American Technology Corp., a technical ventures group. He also had previously served as an associate of Laurance Rockefeller and was a member of the Rockefeller Brothers Foundation study panel. During 1957–59, he was executive vice president and director of Servomechanisms, Inc. Immediately prior to joining FAA, the new Administrator was secretary-treasurer of Aerospace Corp—a firm that is principal technical adviser to the Air Force missile and space program.

Mr. Halaby was educated at Stanford University (A.B. in 1937), and the University of Michigan and Yale University (LL.B. in 1940). He is a member of the bar in California, the District of Columbia, and the Supreme Court of the United States.

An eager hunter, tennis player, and golfer, Mr. Halaby is a former captain of the Stanford golf team.

He is a member of the board of directors of the Flight Safety Foundation, Society of Experimental Test Pilots Town Hall of Los Angeles, Aero Club of Southern California, and Quiet Birdmen.

He maintains membership in the Metropolitan and Chevy Chase Clubs in Washington and the California Club and Beach Clubs in Los Angeles.

Mr. Halaby was born in Dallas, Tex. (November 19, 1915), and is married to the former Doris Carlquist. They have three children—Lisa, Christian, and Alexa. Their west coast residence is Santa Monica, Calif.

BIOGRAPHICAL SKETCH OF CHARLES H. RUBY

Mr. Ruby became a pilot in 1927 when he learned to fly an OX–5 Standard J–1 at St. Louis, Mo.

He operated a charter, flight school, and repair base at St. Petersburg, Fla., until joining the National Airline Taxi System (predecessor of National Airlines, Inc.) in 1935.

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During 1933–34 he constructed one of the first successful flying wing aircraft.

From 1954 through February 1961, he was chief pilot for National Airlines, Inc.

He has qualified on the following National Airlines aircraft: Ryan B–5; Stinson Trimotors Model "T" and "U"; Lockheed 10 (Electra); Lockheed 18–50 (Lodestar); Douglas DC–4; DC–6/6B, DC–7/7B; Convair 240, 340, 440; Lockheed L–188 (Electra), and Douglas DC–8.

He contributed to the research and development of the Link, Lockheed L–188 Simulator; prepared and obtained approved training program. Up to the time of Mr. Ruby's election as president of the Airline Pilots Association in June of 1962, he had completed most of the research and some of the development on the Link DC–8 Simulator owned jointly by Panagra and National.

Mr. Ruby's total flight time to date is 20,300 hours.

Biographical Sketch of Stuart G. Tipton

Mr. Tipton joined the Air Transport Association (ATA) in 1944 as general counsel. He was elected president of the association in December of 1955.

Before coming to ATA, Mr. Tipton was employed in the legislative section of the U.S. Treasury Department. While there, he helped draft the bill which later became the Civil Aeronautics Act of 1938, on which today's air transport system is founded. In 1938, he joined what was then known as the Civil Aeronautics Authority—created by the Civil Aeronautics Act. When this agency split into the Civil Aeronautics Administration (today's Federal Aviation Agency) and the Civil Aeronautics Board in 1940, Mr. Tipton became assistant general counsel of the latter. He held that position until joining the ATA.

Mr. Tipton holds a B.S. degree from Wabash College, Crawfordsville, Ind., and a law degree from Northwestern University. He is married and lives in Potomac, Md.

Biographical Sketch of John R. Wiley

Mr. Wiley was graduated from Massachusetts Institute of Technology in June 1933 with a degree of B.S. in aeronautical engineering.

He was associated with General Air Express and Railway Express Agency in 1934–40 in the promotion and development of air express service.

In 1940, he joined American Airlines as assistant manager of air mail and express.

During the period 1940–46, he served in the Air Transport Command, first in Washington, D.C., in charge of the transport operations branch, and later with Pacific Division Headquarters in Honolulu with the rank of lieutenant colonel.

He returned to American Airlines in 1946 as assistant to the president; later became assistant to the vice president of operations, and director of inventory control.

From 1950 to 1955 he was deputy director of aviation, Port of New York Authority.

From 1955 to the present, he has been director of aviation for the Port of New York Authority, with responsibility for the planning, development, and operation of the four air terminals operated by the port authority—La Guardia, New York International, Newark and Teterboro Airports.

Mr. Wiley served as president of the airport operators' council from 1959 to 1960. He is a member of Kappa Sigma Fraternity and the University Club of Washington, D.C. He is a resident of New Canaan, Conn.

Biographical Sketch of John H. Winant

Mr. Winant is president of the National Business Aircraft Association, Washington, D.C.

In 1962 he was chairman of the General Aviation Council, and director of industrial relations and aviation for Sprague Electric Co., North Adams, Mass.

Mr. Winant is past chairman of the Industrial Relations Department of Electronic Industries Association. He is a member of the Industrial Relations Committees of the National Association of Manufacturers and the National Electrical Manufacturers Association. He is a member of the Economic Security Committee of the United States Chamber of Commerce.

He is director and secretary of Sprague Caribe Co. and Sprague Ponce Co.
He was born in Brooklyn, N.Y. Was graduated from Williams College with a B.A. degree. He served on active duty with the U.S. Marine Corps as captain in World War II and in the Korean emergency.
Mr. Winant is a resident of Williamstown, Mass.

Biographical Sketch of John P. Stack

Engineer; born Lowell, Mass., Sept. 13, 1906; s. Michael and Margaret (Connors) S.; B. S., Mass. Inst. Tech., 1928; m. Helen Sturtevant Dec. 8, 1928; children—Martha (Mrs. John E. Sim), John Peter. Research development high speed aero-dynamics, 1928—with Langley Aero Lab., NACA, beginning as research engr., successively sect. head, div. chief, now asst. dir.; mem. research adv. com. high speed aerodynamics, fluid mechanics, propellers, compressors, Wright Bros. lectr. Inst. Aero Scis., 1944 Adv. Com. Tech. Adv. Panel Aero., Dept. Def.; vis com. dept. mathematics Mass. Inst. Tech., 1954–56. Director of Citizens National Bank (Hampton, Va.). Recipient Science and Research award Air Forces Assn., 1948; awarded Collier trophy (with L. D. Bell, C. E. Yeager) for pioneer supersonic flight manned aircraft, 1948, for transonic wind tunnel development, 1952; awarded medal Soc. Engrs. Sweden, 1951. Fellow Royal Aeronautical Soc. Great Britain, Inst. Aeronautical Sciences (Sylvanus Albert Reid award 1953); mem. Air Force Association, U. S. Nat'l Rifle Assn. Author sci. articles, Member editorial committee Journal Aero. Sciences.
Home: 102 Huntington Bay Road, Huntington, New York.
Office: Republic Aviation Corp., Conkin Street, Farmingdale, N.Y.

Biographical Sketch of Dr. Richard K. Cook

Dr. Cook is Chief, Sound Section, National Bureau of Standards. Born in Chicago, Ill. in 1910. B.S. in physics 1931, Ph. D. 1935, University of Illinois.
Dr. Cook has been at the Bureau of Standards since 1935 and Chief of the Sound Section since 1942. During the same interval he taught evening classes at the Department of Agriculture Graduate School, at the National Bureau of Standards Graduate School and at the Polytechnic Institute of Brooklyn, served as a guest worker in solid-state physics and ultrasonics at the Bell Telephone Laboratories (1956) and worked for 3 months with the U.S. Operations Mission in Israel.
Dr. Cook has published 30 papers in physics, mathematics, and engineering as well as numerous book reviews and popular articles. He was senior editor of the Journal of the Washington Academy of Sciences in 1955, and is the editor of the acoustics section of the American Institute of Physics Handbook (2d ed.) and associate editor of the journal "Sound—It's Uses and Control."
Dr. Cook represents the National Bureau of Standards on committees of the American Standards Association, the American Society for Testing Materials, the American Medical Association and on several defense advisory committees. He is a fellow of the Acoustical Society of America, of the American Physical Society, and of the American Association for the Advancement of Science, and is a member of the Washington Academy of Sciences, of the Philosophical Society of Washington, and of the National Research Council of the National Academy of Sciences. Dr. Cook was president of the Acoustical Society of America in 1957–58, vice president in 1954–55, and member of the executive council in 1948–51 and 1956–59.
Dr. Cook received the Engineering Sciences Award of the Washington Academy of Sciences, for researches in physical acoustics, for the year 1949. He is especially well known for having placed on a firm foundation the reciprocity method for absolute calibration of microphones, since established as a standard method throughout the world.

Biographical Sketch of Harry H. Howell

Mr. Howell was born in Superior, Wis. He attended Oregon State University at Corvallis, Oreg., obtaining a B.S. degree in electrical engineering in 1931. He worked as a junior engineer for Radio Corp. of America at Camden, N.J., and was engineer for Standard X-ray Corp. of Seattle, Wash., designing industrial X-ray equipment. Mr. Howell has been with the Boeing Co. since 1942; first as unit chief of the Acoustics and Electrical Division, and presently is staff assistant of the electro-dynamics staff, Transport Division.

One of Mr. Howell's major projects while at Boeing was the development of the jet engine sound suppressor. During this $6 million program led by him, thousands of design ideas were tested before the present satisfactory configuration was found.

In his present position since 1956, Mr. Howell has often represented Boeing as expert on various problems involving aircraft noise. He has published numerous papers and articles on the subjects of acoustics and noise control.

Biographical Sketch of Harvey H. Hubbard

Born in Swanton, Vt., June 17, 1921.

Education: B.S. degree in electrical engineering from University of Vermont, 1942. Subsequent graduate studies in aerodynamics at University of Virginia.

Experience: Radio Interference Laboratory, Westinghouse Manufacturing Co., East Pittsburgh, Pa., 1942. U.S. Army Signal Corps and U.S. Air Force 1942 through 1945. Entered on duty at NACA (now NASA) in 1945. Since that time has performed and supervised research on generation of propeller, jet, rocket, and boundary-layer noise, sonic boom, and structural responses to noise. Presently head of Acoustics Branch of the Dynamic Loads Division at the NASA Langley Research Center. Has published about 60 papers on acoustics in various technical journals, Government publications, and textbooks.

Member of Acoustical Society of America; Americal Physical Society; Armed Forces-National Research Council Committee on Hearing and Bio-Acoustics (CHABA); Society of Automotive Engineers Committee A–21, Aircraft Exterior Noise Measurement; and Acoustical Society of America Technical Committee on Noise.

Biographical Sketch of Franklin W. Kolk

He was graduated from MIT with a B.S. in aeronautical engineering. Prior to his present employment, he held a position of senior aerodynamist with the Martin Co.

He joined American Airlines in 1954 as a member of the aircraft planning section. He has been associated with aircraft planning work since that time. In addition, he has served as a flight test engineer, general performance engineer, and airworthiness requirements specialist. This period has encompassed the procurement of the DC–6, the CV–240 and the DC–7 as well as the current round of turbine equipment.

He is now assistant vice president of engineering research and development for American. He is also a member of the NASA Research Advisory Committee on Aircraft Aerodynamics, and associate fellow of the Institute of the Aeronautical Sciences, and is a member of the Society of Automotive Engineers and the Royal Aeronautical Society.

Mr. Kolk is a native Long Islander. He and his wife have three daughters. Sailing is his principal activity outside of aviation and his enthusiasm for the sport is avidly shared by the entire family.

Biographical Sketch of Karl D. Kryter, Supervisory Engineering Psychologist

Education: B.A., Butler University, 1939; Ph. D. (psychology), University of Rochester, 1943.

Professional experience: Research and teaching assistant, University of Rochester, 1939–42; research fellow, Psychoacoustic Laboratory, Harvard University, 1942–45; research and teaching fellow and member, Systems Research Laboratory, Harvard University, 1945–46; assistant professor of psychology, Washington University, 1946–48; director, Operational Applications Laboratory (formerly Human Resources Research Laboratory (1952–54), Air Force Cambridge Research Center, Air Research and Development Command, 1948–57.

Honors and societies: Fellow, American Psychological Association, Acoustical Society of America, American Association for the Advancement of Science; member, Human Factors Society of America, American Statistical Association, Sigma Xi.

Professional responsibilities and projects: Dr. Kryter has been active in the field of human engineering of communications since 1942. At the Harvard University Psychoacoustic Laboratory, he conducted studies aimed at improving speech communication in noise and at high altitudes; at the Systems Research Laboratory he worked on the organization of naval combat information centers, human engineering evaluation of equipment, and training methods and exercises to improve the performance of shipborne radar and fire-control systems. In 1948, Dr. Kryter organized and then directed the Air Force's Human Resources Laboratories in programs concerned with basic research of human information processing and speech communication and applied research on personnel training and on the evaluation of human and systems performance under operational conditions. As director of the psychoacoustic group at Bolt Beranek and Newman, Inc., Dr. Kryter directs studies on speech communication, audition, and the effects of noise on man.

Biographical Sketch of Matha M. Miller

He is currently chief research engineer, missile systems engineering, Missile and Space Systems Division, Douglas Aircraft Co., Inc., having served in this capacity since May 1962.

He received his B.A. in physics from the University of California at Los Angeles in 1948 and has completed 2 years of graduate study in acoustics at the same institution.

He began work in January 1949 with the Douglas Aircraft Co. as an acoustical engineer. As aircraft noise problems increased, his activities expanded to group engineer, group supervisor, and acoustics section chief within the aircraft division. In these capacities he was responsible for all acoustical problems concerned with the super DC–3, DC–6B, the DC–7, the X–3 (MX–656), and the DC–8 jet transport. He and his section also served as consultants on aircraft problems in other divisions of the Douglas Aircraft Co. In 1957 he was given the additional responsibility for acoustics and vibration problems concerning missile and spacecraft developmental programs. These responsibilities have included the Thor, Genie, Skybolt, Zeus, and Saturn systems.

Mr. Miller holds several patents on aircraft acoustical devices and has contributed appropriate technical papers in his field. He is a member of the Armed Forces National Research Council Committee on Hearing and Bioacoustics and serves on the executive council. Mr. Miller is a fellow in the Acoustical Society of America, and a member of the Institute of the Aerospace Sciences. He is active in the Acoustical Society on the Committee on Noise and the membership committee. In the past, he has been a member of the NASA Subcommittee on Aircraft Noise, the Aircraft Industries Association Subcommittee on Noise, and the American Standards Association's Exploratory Committee on Community Noise Criteria.

Biographical Sketch of Joseph K. Power

After flying DC–3's in the South Pacific during World War II, Mr. Power joined Pan American World Airways flying DC–3's in South America. During the Korean war Mr. Power was called to active duty with the U.S. Army and served as an engineer. Upon discharge joined the U.S. Air Force as a flight test engineer and was awarded the Civilian Meritorious Service Award by Gen. Curtis LeMay for flight test of the recordbreaking KC–135 jet aircraft *Speckled Trout.*

Mr. Power joined the FAA in 1958 and is presently assigned as program manager for operations in the Supersonic Transport Management Office, responsible for the management of various engineering, environmental, and operational programs concerning the supersonic transport.

Mr. Power attended the University of Oregon and graduated from National College as a radio engineer in 1942.

Biographical Sketch of Dr. Spiridon N. Suciu

He was born December 11, 1921, in Flint, Mich. His industrial experience began in 1940 with the A. C. Spark Plug Co. of Flint where he served an apprenticeship in machine repair and tool and die making. In 1941 he began his advanced education at the General Motors Institute of Technology while a cooperative student with the Chevrolet Motor Co. of Flint. He completed his undergraduate training at Purdue University in 1944, receiving a B.S. degree in mechanical engineering.

After midshipman training at Columbia University in New York he served as a torpedo officer in the U.S. Naval Reserve on board a destroyer.

He was separated from the service in 1947 and returned to Purdue University for graduate study. He was awarded a fellowship from the Ethyl Corp. and received his masters degree in mechanical engineering in 1949. He continued his graduate work under a Westinghouse fellowship and obtained his Ph. D. in thermodynamics in January of 1951.

In February 1951, he joined the General Electric Co. and was assigned to their research laboratory in Schenectady, N.Y. As a research engineer he conducted analytical and experimental investigations of aircraft gas turbine combustors.

In May 1954 he was made supervisor, basic combustion, component development, Evendale, Ohio. He was responsible for a small group of scientists and engineers engaged in investigations of the fundamental heat transfer, fluid mechanic, chemical kinetic, and thermodynamic mechanisms of combustion phenomena.

January 1956, he was named manager of applied rocket research suboperation, flight propulsion laboratory, Evendale plant. He managed research programs to develop new and improved concepts for application to rocket engines and plasma and ion propulsion devices.

He assumed his present position as manager, applied research operation, flight propulsion laboratory department, Evendale plant, in October 1958. In this capacity, Dr. Suciu leads investigations of new scientific or engineering principles and directs the development of ideas to improve existing flight propulsion engines and of concepts for new flight and space propulsion systems.

He is a member of ASME, ARS, AAAS, and is a registered professional engineer in Ohio. In addition, he is a past president of the southern Ohio section of the American Rocket Society, and is presently a director of the same organization. He coauthored a two-volume set of tables and explanatory material on the thermodynamic properties of combustion gases. He has published papers in ASME and ARS "Transactions."

Dr. Suciu, his wife, and five children reside at 9951 Sherwood Drive, Cincinnati, Ohio.

Biographical Sketch of John M. Tyler

As project engineer in charge of the advanced study group concerned with jet-engine noise, Mr. Tyler is responsible for the development of sound suppression of jet-engine noise. The results of this work have been made available to the airplane manufacturers using Pratt & Whitney Aircraft jet engines and have been instrumental in developing the jet-exhaust-noise suppressors now in use on commercial transports.

Mr. Tyler joined Pratt & Whitney Aircraft in 1938 as an engineer assigned to powerplant installation problems where he was responsible for developing the powerplant noise suppression systems used on Pratt & Whitney Aircraft piston engines. He later became head of the Analytical Section of the Installation Department of Pratt & Whitney Aircraft and was responsible for vibration and noise studies of engines, propellers, and exhaust systems, as well as studies of engine cooling, fuel systems, induction system icing, cold starting, and similar installation problems. Mr. Tyler developed procedures for measuring engine and propeller vibration stresses in flight and later developed laboratory techniques for determining the compatibility of engines, propellers and accessories from the standpoint of vibration. He was also responsible for laboratory studies of the noise produced by various propeller-exhaust system combinations when coupled by various engine-propeller gear ratios. In 1953, Mr. Tyler was transferred to the engineering department, where he has concentrated on the jet-engine-noise problem.

Mr. Tyler was graduated from Cornell University in 1927 with the degree of mechanical engineer, and spent 1 year at the Technichi Hochschule in Stuttgart, Germany, doing work in a specialized field of vibration. He is the author of many papers in technical journals. Some of these were published while he worked in the special problems department of the General Motors Research Laboratories in Detroit, 1927–35; others while he was in the installation department of Pratt & Whitney Aircraft, and most recently the following four SAE papers on jet engine noise: "Jet Noise," 1954; "A Jet Exhaust Silencer," 1955; "Suppression of Jet Engine Noise During Ground Running," 1956; "Rectangular Nozzles for Jet Engine Noise Suppression," 1959; "Axial Flow Compressor Noise Studies," 1961. The paper "Jet Noise" was awarded both the Wright brothers and Manley awards by the SAE for having made outstanding contributions to the state of the art in the airplane and aircraft engine fields respectively. The paper "Axial Flow Compressor Noise Studies" was awarded the Manley award by the SAE for having made an outstanding contribution to the state of the art in the aircraft engine field.

Biographical Sketch of Paul S. Veneklasen

He attended Northwestern University from 1933 to 1937, degree: B.S. honors, majoring in physics, mathematics, aeronautical engineering, and in 1937 and 1938, receiving his M.S., majoring in physics and mathematics. He also attended the University of California at Los Angeles from 1938 to 1941, working toward his Ph. D. in physics, which was interrupted by war.

He is a fellow of Acoustical Society of America, associate editor for Architectural Acoustics; member of Institute of Radio Engineers: American Rocket Society, Institute of Aeronautical Sciences; West Coast Noise Symposium, chairman, 1956.

From 1947 to the present, he has been associated with Paul S. Veneklasen & Associates, consultation in all types of acoustical problems, aural protection, communications, community noise problems, electro-acoustic analogs, combustion instability in rocket motors, architectural acoustics, noise control, test cell design, high intensity noise source design, missile and aircraft noise environment, owner and technical director of Western Electro-Acoustic Laboratory, official Acoustical Standards Laboratory; development of acoustical measuring equipment; contract research and development.

From 1946 to 1950, he was with Altec-Lansing Corp., Beverly Hills, Calif. (now Ling-Altec, Anaheim, Calif.), as a research physicist in charge of acoustical measurements, development of loudspeakers, microphones, communication devices.

From August 1943 to November 1945, he was a research associate at Harvard University, Cambridge, Mass., working in the development of devices for aural communication.

From February to July 1943; Duke University. Research Associate, Division of Physical War Research, participating in studies of transmission of sound through atmosphere.

From April 1942 to January 1943, he was a research associate at the University of California at Los Angeles, National Defense Research Committee, subcontract from Harvard University, continuation on development of devices for aural protection, and control and measurement of sound levels in military aircraft.

From June 1941 to March 1942: UCLA research assistant. NDRC contract, working on development of devices for aural protection.

From September 1938 to June 1941, he was at UCLA as a teaching assistant, physics department.

BIOGRAPHICAL SKETCH OF HENNING EDGAR VON GIERKE, CHIEF, BIOACOUSTICS BRANCH, AEROSPACE MEDICAL RESEARCH LABORATORIES, WRIGHT-PATTERSON AIR FORCE BASE, OHIO

Dr. Henning E. von Gierke was born in Karlsruhe, Germany, on May 22, 1917. He studied electrical engineering and electronics at the Technical Universities of Karlsruhe and Munich. He received the degree, diplom ingenieur at Karlsruhe in 1943. From 1943 to 1947 he was research assistant at the Institute for Theoretical Electrical Engineering and Communications Technique at the Technical University of Karlsruhe. Here he worked on several projects in the fields of acoustics and applied physics. In 1944 he received the degree, doctor ingenieur, from the Technical University of Karlsruhe. From 1946 to 1947 he served as lecturer in high frequency communications technique at this institution.

Since 1947, Dr. von Gierke has been engaged in research in the fields of physical and physiological acoustics, aviation acoustics, biodynamics and biophysics for the U.S. Air Force. He is now Chief of the Bioacoustics Branch, Aerospace Medical Research Laboratories, Wright-Patterson Air Force Base, Ohio. His branch is responsible for research in all areas related to the effects of noise, vibrations, and impact on man, for formulating exposure criteria, and for providing principles for protection against such hazardous biodynamic environments. His branch is also conducting research in bionics, cybernetics, and related areas of experimental and theoretical biophysics.

Dr. von Gierke served or is still serving as a member or chairman of several working groups of the Armed Forces-National Research Council Committee on Hearing and Bio-Acoustics, and of several writing groups of the American Standards Association. For several years he has been vice chairman of the American Standards Association's sectional committee on "bioacoustics" and is a member of the sectional committee on "acoustics." He participated as a member in the activities of the Panel on Acceleration Stress of the Armed Forces-National Research Council Committee on Bio-Astronautics, and of the National Aeronautics and Space Administration Subcommittee on Flight Medicine and Biology.

He is the author of many technical papers in physical and physiological acoustics and on the effects of vibrations on man. He wrote the chapters "Aircraft Noise" and "Aircraft Noise Control" in the "Handbook of Noise Control" (McGraw-Hill, 1957) and is coauthor of the chapters "The Effect of Shock and Vibrations on Man" in the "Shock and Vibration Handbook" (McGraw-Hill Co., 1961) and of "Biodynamics of Space Flight" in "Progress in Astronautical Sciences" (North Holland Publishing Co., 1962). Dr. von Gierke is holding several patents in the fields of acoustics and bioacoustics. He is a fellow of the Acoustical Society of America, a member of the Bio-Physical Society, and of the Aerospace Medical Association. His biography is listed in the 10th edition of American Men of Science.

Dr. von Gierke is married and the father of two children.

Biographical Sketch of James Franklin Woodall

Born March 29, 1917, at Chicago, Ill. He received his B.S. degree in 1941 in aeronautics engineering at Aeronautical University, Chicago, Ill.; was licensed professional engineer (mechanical) by the State of California. He received his LL.B. degree in 1949 from Balboa University, San Diego, Calif., and is an active member of the State bar of California.

His supplementary formal education includes: 1941–45, University of California extension courses in aerodynamics and hydrodynamics: 1953, Massachusetts Institute of Technology—special courses in noise control (2 weeks); 1955, Massachusetts Institute of Technology—advanced course in noise control (2 weeks).

His special training includes: 1941, civilian pilot training program (private pilot license), Chicago, Ill.; 1944, courses on navigation, Consolidated-Vultee Aircraft Corp. 6 months); 1945, courses leading to certification as loran operator (received U.S. Army Air Corps certification); and from 1954 to present has taken all scheduled courses for supervision offered by Convair.

He is an acoustics group engineer for Convair, a division of General Dynamics, San Diego, Calif. He has held successively the following positions: 1941, inspector; 1942–44, member aerodynamics and flight test groups; 1944–45, operations engineer for Convair-operated Trans-Pacific Airlines; 1945–48, member of the predesign and aerodynamics group; 1948–55, employed successively as personal staff to chief development engineer, R. L. Bayless; chief engineer, F. W. Fink; and vice president, engineering, R. C. Sebold.

His professional and technical associations are: Registered professional engineer, California M.E. 7670; member, California State and San Diego Bar Associations; member, Acoustical Society of America; member, Institute of Aeronautical Sciences; member, NASA Subcommittee on Noise; member, industrywide committee on noise abatement (AIA-ATA-ALPA, etc.); member, AIA airworthiness requirements committee (chairman twice); and member, San Diego Harbor Commission's Technical Committee on Airport Noise.

Biographical Sketch of Lloyd Welch Pogue

Lawyer; born Grant, Iowa, Oct. 21, 1899; s. Leander Welch and Myrtle Viola (Casey) P.; A.B., U. of Neb., 1924; LL.B., U. of Mich. Law Sch., 1926; S.J.D., Harvard Law Sch., 1927; m. Mary Ellen Edgerton, Sept. 8, 1926; children—Richard Welch, William Lloyd, John Marshall. Assoc. Ropes, Gray, Boyden and Perkins, 1927–33; partner firm, Searle, James and Crawford, New York, N. Y., 1933–38; asst. gen. counsel in charge economic regulatory work from creation of Civ. Aeronautics Authority to 1939, gen. counsel Civ. Aero. Authority (now Civil Aeronautics Board) through 1941; chmn. of the bd., Jan. 1942–June 1946; mem. Pogue & Neal, Washington, D.C., since June 1946. Mem. U. S. dels. to Chicago Internat. Civil Aviation Conf., 1944; Bermuda United Kingdom-U.S. Conf. 1946 (vice-chmn.); Interim Assembly PICAO, 1946 (vice chmn.); 1st Assembly PICAO, 1946 (vice chmn.); 1st Assembly ICAO, 1947. Served as pvt. AUS, 1918. Fellow Am. Helicopter Soc., Inc.; hon. mem. Nat. Inst. Aeronautic Scis.; mem. Am. Bar Assn. (mem. com. aero. law), D.C. Bar Assn., Fed. Bar Assn., Nat. Aero Assn. (past pres.; chmn. bd.) Council on Fgn. Relations, National Planning Assoc. (national council), American Legion, Phi Delta Phi, Delta Sigma Rho, Acacia, Mason. Clubs: Nat. Aviation, Metropolitan, University (Washington), Wings (NYC), Bohemian (San Francisco).

Home: 5204 Kenwood Avenue, Chevy Chase 15, Maryland.

Office: 1001 Connecticut Avenue NW., Washington 6, D.C.

Biographical Sketch of Warren Christopher

He is a partner in the Los Angeles law firm of O'Melveny & Myers. He was graduated from the University of Southern California magna cum laude and Stanford University Law School with Order of Coif. He served as law clerk to Mr. Justice William O. Douglas in 1949 before entering law practice.

He was chairman of the U.S. delegation to the Geneva Conference on Cotton Textiles in 1961, and he at present is public member and vice president of the California Coordinating Council for Higher Education.

He has represented airline defendants in noise litigation in California, and he has participated in the Los Angeles Sound Abatement Coordinating Committee.

BIOGRAPHICAL SKETCH OF SIDNEY GOLDSTEIN

He was born in Brooklyn, N.Y.; graduated from St. John's College School of Law in Brooklyn; admitted to New York bar in 1931; joined port authority staff in July 1934 and become general counsel in January 1962. During Second World War he served in U.S. Army Signal Corps.

He is married to the former Olga Stein and has one daughter, Helena Ann. His home address is 1172 Park Avenue, New York City.

He is a member of the American Bar Association; chairman of section of local government law; member of associate and advisory committee to the standing committee on aeronautical law; National Institute of Municipal Law Officers; chairman of committee on airports since 1953; Federal Bar Association; member, Municipal Law and Interstate Commerce Committee; New York State Bar Association; member, committee on aeronautical law; New York County Lawyers Association; member, committee on aeronautical law; Association of the Bar of the City of New York; International Bar Association; International Law Association; Municipal Forum of the City of New York; American Association of Port Authorities; chairman, standing committee on law and legislation; member, law subcommittee; Airport Operators Council; member, special advisory committee on legal matters; and Association of Interstate Commerce Commission Practitioners.

His awards are as follows: October 10, 1956, National Institute of Municipal Law Officers "Award for Distinguished Public Service"; September 10, 1959, Port of New York Authority's Distinguished Service Medal; February 28, 1961 "Award for Distinguished Contributions to American Aero-Space Power" from the Metropolitan Squadron of the Air Force Association.

BIOGRAPHICAL SKETCH OF JAMES D. HILL

He was born June 27, 1913 in Phoenix, Ariz.: is married and has three children. He resides at 7005 Arandale Road, Bethesda, Md.

He received his B.A. degree (cum laude) from State University of Iowa in 1936; his J.D. degree (magna cum laude) from the University of Law School in 1938. His honors at University of Iowa include: Debating team, Iowa Law Review, Order of Coif, graduate fellowship as assistant to Dean Wiley Rutledge, graduated fifth in class of 80.

From 1938 to 1942 he was in private practice with law firm of Grimm, Elliott, Shuttleworth & Ingersoll, Cedar Rapids, Iowa. In 1942 he was Assistant Solicitor, Department of Interior; 1943, attorney, Enforcement Division, OPA; 1943–45, ensign and lieutenant (junior grade) USNR; 1945–48, Special Assistant to the Attorney General; 1948–56, Chief, Alien Property Litigation Branch, Department of Justice; 1956–59, Chief Legal Adviser, Office of Alien Property; 1957–58, 15 months on loan to Post Office Department as Special Assistant to Postmaster General trying *Railway Mail Pay Cases*, I.C.C.; 1959–62, Associate General Counsel, Federal Aviation Agency; April 1962, Deputy General Counsel, Federal Aviation Agency.

His organizations include: Kenwood, Md. Country Club (member, board of governors); Bethesda, Md., Presbyterian Church, deacon and past president, Men's Fellowship; American Legion (national vice chairman, child welfare commission, former member national executive committee); Federal Bar Association (chairman, aviation law committee); American Bar Association; Iowa Bar Association; Bar of Supreme Court of Iowa, U.S. Supreme Court; First Circuit Court of Appeals; Second Circuit Court of Appeals; District of Columbia Court of Appeals; district courts, northern and southern districts of Iowa.

BIOGRAPHICAL SKETCH OF MAJ. GEN. ALBERT M. KUHFELD, USAF

Born at Hillyard, Wash., on January 25, 1905. He is a graduate of Central High School, St. Paul, Minn., and received his bachelor of laws degree from the University of Minnesota in 1926. On December 17, 1926, he was appointed a second lieutenant in the Infantry Reserve. He was married to Olive Leone Peterson on June 8, 1930.

After graduation from law school, General Kuhfeld was a law editor whose abilities were utilized on a reissue of Girard's "New York Real Property Law." During that time he was admitted to the bar of the State of Minnesota, where he began the practice of law. Subsequently, he went to North Dakota and was admitted to the bar of that State in 1927. The following 3 years he practiced law in North Dakota and did appellate work in the North Dakota Supreme Court.

In 1930, he was elected State's attorney, Golden Valley County, N. Dak., in which he served for two terms. He became an assistant attorney general for the State of North Dakota in 1934 and served in that capacity under three attorneys general. In 1939, the Legislative Assembly of the State of North Dakota passed a code revision bill providing for the complete revision of the North Dakota Code by a commission consisting of three lawyers from the State, selected by the North Dakota Supreme Court. General Kuhfeld was chosen as chairman of the code commission and given a leave of absence from the attorney general's office.

While engaged in this work he was called to active duty, in March 1942, as a first lieutenant, Infantry, and was assigned to Camp Crowder, Mo. In September 1942, he became judge advocate at the Salina (Kans.) Cantonment. He entered the Judge Advocate General's School at Ann Arbor, Mich., in March 1943 and following completion of the course 2 months later was assigned to a short period of temporary duty in the Claims Division of the Judge Advocate General's office in Washington, D.C.

In June 1943, he became executive officer to the Air Force judge advocate of the Fifth Air Force in the Southwest Pacific area, and a year later was appointed judge advocate of the Fifth Air Force in that area. On October 17, 1945, General Kuhfeld was awarded the Bronze Star Medal for meritorious service in connection with military operations against the enemy in the Southwest Pacific area. On February 15, 1946, General Kuhfeld was awarded the Legion of Merit for exceptionally meritorious conduct in the performance of outstanding service to the United States while he was a member of the Fifth Air Force.

In March 1946, he returned to the United States for assignment to the office of the Air Judge Advocate in Washington, D.C., and subsequently was assigned to the Ninth Air Force at Biggs Field, Tex., as staff judge advocate.

In August 1946, he received his Regular commission in The Judge Advocate General's Corps, U.S. Army.

In January, 1947, he was assigned to the Office of the Staff Judge Advocate, Headquarters Air Transport Command, Washington, D.C. In August 1947, he requested transfer and was transferred to the Air Corps which became the U.S. Air Force under the National Security Act of 1947. On July 1, 1948, he was assigned to the Office of the Judge Advocate General, Headquarters U.S. Air Force. He served first as a chairman of a board of review and, when the Air Force Judicial Council was established as a result of the Elston Act, he became a member of the Judicial Council. In April 1949, he was appointed brigadier general and Assistant Judge Advocate General for Military Justice. During this time he continued to serve on the Judicial Council until such Council was eliminated by the present Uniform Code of Military Justice. In 1950, General Kuhfeld was admitted to practice before the bar of the U.S. Supreme Court.

General Kuhfeld was appointed the Assistant Judge Advocate General, U.S. Air Force, on February 20, 1953, and was promoted to major general on October 27, 1954. He served in that capacity until he was appointed as The Judge Advocate General of the U.S. Air Force by the President of the United States effective April 1, 1960.

For his contribution toward improving the effectiveness and status of The Judge Advocate General's Department and for his guidance in the implementation of the Status of Forces Agreements which significantly advanced Air Force objectives and national security, for the period February 20, 1953, through March 31, 1960, General Kuhfeld was awarded the Oak Leaf Cluster to the Legion of Merit.

As the Judge Advocate General of the Air Force, General Kuhfeld currently supervises a force of approximately 1,200 lawyers and over 1,600 nonlawyers who are assigned to over 300 different legal offices throughout the world. He is also the legal advisor to the Chief of Staff, U.S. Air Force, and his staff. By Federal statute, he exercises general supervision over the administration of military justice within the Air Force. During a normal year, the Air Force will prosecute in the name of the United States more criminal cases (about 36,500 per year) than are filed by the Attorney General in the United States district courts. This tremendous responsibility in the field of criminal law is equaled, if not surpassed, by the many facets of General Kuhfeld's civil law responsibilities—claims, military affairs, patents, litigation, international law, and procurement counseling.

BIOGRAPHICAL SKETCH OF LEANDER I. SHELLEY, LAWYER, NEW YORK, N.Y.

Member of the New York State Bar. Admitted to practice before U.S. Supreme Court, U.S. Court of Appeals (Second Circuit), and U.S. District Courts (Eastern and Southern Districts of New York).

General counsel, Airport Operators Council, American Association of Port Authorities, North Atlantic Ports Association.

Admitted to New York State Bar (1920). Associated with and member of firm of Medina & Sherpick (1920–26). Member of legal staff and general counsel of the Port of New York Authority (1926–51). In private practice (1952 to date).

Born New London, Conn., 1893. Graduated College of Law, Cornell University, 1917. First lieutenant, U.S. Regular Army, 1917–20. Served with American Expeditionary Force and Army of Occupation. Resigned 1920. Married. Resides in White Plains, N.Y. Member of Association of the Bar of the City of New York, Westchester County Bar Association, Municipal Forum of New York, American Yacht Club, Cornell Club of New York, Wings Club, and Delta Theta Phi.

BIOGRAPHICAL SKETCH OF CROCKER SNOW

Crocker Snow, director of aeronautics for the Commonwealth of Massachusetts, has been actively engaged in civil and military flying since he graduated from Harvard in 1926. Born in Boston, he helped to re-create the Harvard Flying Club, first established in 1910, and gained his first flying experience with the club, with his older brother, who had flown with the Royal Flying Corps in the first war, and with the Massachusetts Air National Guard.

After college, he became president of Skyways, Inc., one of New England's first and largest fixed base operations, with headquarters at the Boston Airport, and airports of its own from Cape Cod to Portland, Maine. The company sold its assets, in the late thirties, to E. W. Wiggins Airways, Inc.

In 1939, after writing the first comprehensive aeronautical law for Massachusetts, he became director of the newly created Massachusetts Aeronautics Commission, and in 1940 a member of Governor Saltonstall's three-man war-inspired industrial preparedness committee.

In 1941, he was called to active duty at the request of Gen. Bob Olds, who had been given the task of getting lend-lease airplanes to England. His first job, as commanding officer of the North Atlantic Sector of Olds' Air Corps Ferrying Command, was to represent the U.S. Army Air Force in construction of airports at Presque Isle, Maine, Goose Bay, Labrador, and Bluie West One, Greenland. During this tour of duty, he proposed and tested the unescorted delivery of fighter aircraft across the Atlantic. Subsequently, he represented what had become the Air Transport Command in a tactical and logistical survey of a possible air operation against Japan via the Vladivostok Peninsula.

After leaving the Air Transport Command, he was placed in command of a B–17 bombardment group which he trained and delivered to the United Kingdom in the summer of 1943. On his return he was assigned to B–29's and given the 498th Bombardment Group to organize. He flew the second B–29 to land in the Mariannas, and in November of 1944 led the 498th in the first B–29 raid against Tokyo. When the war ended, he was a command pilot, assistant chief of staff A–2 to Gen. Rosie O'Donnell, whose 73d Bomb Wing, the first B–29 unit in the Pacific, had continued to operate against the Japanese Empire from Isely Field, Saipan. In this last position he had the job of letting the Japanese

people know, by leaflets dropped from the air, the story of Hiroshima and what was yet to come.

Returning to his previous job after the war, he became president of the National Association of State Aviation Officials, chairman of the Conference of National Aviation Organizations, which is made up of the country's 14 dominant national aeronautical industry groups, and was a consultant to the Airways Modernization Board. He presently is a consultant to the Federal Aviation Agency, a director of the National Aeronautic Association, represents the National Pilots Association on the General Aviation Council, is chairman of NASAO's Navigational Aids and Airspace Committee, is chairman of the New England Council Aviation Committee, chairman of the New England Conference of State Aviation Officials, president of the Harvard Aviation Foundation, and a member of the Harvard College Visiting Committee for the Departments of Military, Naval, and Air Science.

He is married, has three children, and lives in Ipswich, from where he commutes to work in his eighth successive personal airplane, a Navion.

Biographical Sketch of John E. Stephen

He is general counsel, Air Transport Association of America. He is a member of the Legal Committee, National Aircraft Noise Abatement Council; Associate and Advisory Committee-Standing Committee on Aeronautical Law, American Bar Association; Aviation Committees, Administrative Law Section and Public Utilities Section, American Bar Association; Association of Interstate Commerce Committee Practitioners; Texas and District of Columbia Bar Associations; airlines' industry adviser, U.S. civil air delegation to the United Kingdom, France, Spain, Belgium, Netherlands, Australia, and Brazil; former vice president and general counsel, Gulf Coast Network; former special counsel and special assistant to the mayor, city of Houston, and Houston Chamber of Commerce.

His education is as follows: University of Mexico; University of Texas, LL.B.; Northwestern University, postgraduate; U.S. Naval Academy, Annapolis, Md., postgraduate and Naval War College, Newport, R.I.

His military service is as follows: Served to Commander, line, U.S. Navy, World War II, Pacific theater of operations, heavy cruisers, carriers. attack and flagships; staff, commander, Cruiser Division 15; staff, commander, Yangtze Patrol; staff, countermeasures and deception, Commander Amphibious Forces, Pacific; special duty NATO Headquarters-Supreme Allied Command; Naval Unit Citation; Asiatic-Pacific Medal, nine battle stars.

His home address is 701 Lakeview Drive, Lake Barcroft, Fairfax County, Va.

Biographical Sketch of Fred G. Stickel III

Graduate of Princeton University with an A.B. degree in 1937, summa cum laude in political science and local government, graduated from Columbia Law School, LL.B. in 1940; a member of the bar as an attorney at law of New Jersey in October 1940 and a counselor at law March 1944; was admitted to the U.S. Supreme Court October 23, 1952; has been practicing law as a member of the firm of Stickel & Stickel, 11 Commerce Street, Newark, N.J., since October 1940.

Specializes in municipal law and particularly in the field of zoning and planning. A member of the Essex County, N.J., and American Bar Associations; past president and trustee of the New Jersey Institute of Municipal Attorneys; a member and past trustee of the National Institute of Municipal Law Officers and served as chairman on the Committee of Zoning and Planning of NIMLO for the past 10 years. Member of the American Society of Planning Officials and served on the editorial advisory board of the Zoning Digest, a monthly publication by the American Society of Planning Officials reviewing all decisions on zoning and planning throughout the country.

Member of the Municipal Section of the American Bar Association and a member of that section's committee on zoning and planning. Chairman of the committee appointed by Gov. Alfred Driscoll of the State of New Jersey to revise the planning and enabling legislation of the State of New Jersey, now known as chapters 433 and 434 of the Laws of 1953.

Member and secretary of the County and Municipal Law Revision Commission of the State of New Jersey appointed by Gov. Robert B. Meyner May 10, 1957, and chairman of the subcommittee to revise the planning and zoning enabling legislation of the State of New Jersey. Past director and counsel to the New Jersey Federation of Official Planning Boards and chairman of the Advisory Planning Commission of the State of New Jersey and recipient of NIMLO's award for distinguished public service as a municipal law officer presented November 22, 1955.

BIOGRAPHY OF JAMES E. STRUNCK

He was born on January 4, 1920, in Chicago, Ill., and currently lives at 3459 North Pontiac Avenue, Chicago, Ill., with his wife, Marijane Byers Strunck, and three children, Robert E., Therese M., and Julie Ann.

He was graduated from the parochial schools; attended the University of Illinois, 1946–48, receiving a B.S. degree, major in economics; attended Chicago-Kent College of Law, 1948–50, receiving an LL.B. degree; admitted to the Illinois bar (1950); completed the Judge Advocate General Course, Air Command and Staff School, U.S. Air Force.

He served as a pilot in the USAAF during World War II and saw action in the Southwest Pacific theater; was a squadron commander and legal officer in the USAF during the Korean war and is presently legal staff officer in headquarters, Illinois Air National Guard.

On leaving the Air Force he became an assistant corporation counsel in the department of law, city of Chicago, and has since that time specialized in law and legislative matters relating to public improvements, aviation, contracts, and annexations, and is assistant corporation counsel in charge, aviation and contracts division.

Mr. Strunck served as State senator in the 71st and 72d general assemblies, of the State of Illinois.

His organization memberships include: American Bar Association; Illinois State Bar Association; Chicago Bar Association (member, legislative committee and committee on aviation); American Legion; National Institute of Municipal Law Officers (secretary, committee on aviation law); American Right-of-Way Association; ex-officio member, Committee on Aviation, Chicago Association of Commerce and Industry.

BIOGRAPHICAL SKETCH OF LYMAN M. TONDEL, JR.

He was born in Selleck, Wash., July 19, 1912. Grew up in Seattle. Graduated from its public schools; the University of Washington (A.B. magna cum laude, 1933; Phi Beta Kappa); and Harvard Law School (LL.B. 1936). Partner in Cleary, Gottlieb & Steen (1951–). Was earlier at Root, Clark, Buckner & Ballantine (1936–42; 1942–47) and American Smelting and Refining Co. where he was assistant general counsel (1947–51), a member of the advisory committee (1948–51), and in direct charge also of its labor relations in the United States. In 1942 was Assistant to the General Counsel of the Board of Investigation and Research under the Transportation Act of 1940.

He is now serving his third term as a member of the House of Delegates of the American Bar Association and is a member of the Executive Committees of the Association of the Bar of the City and of the New York State Bar Association. He has been national chairman of two sections of the ABA, the Junior Bar Conference, and the International and Comparative Law Section, and a member of many bar association committees, including, at the present time, the American Bar Association Committee on World Peace Through Law. He was chairman of the Special Committee of the Section of International and Comparative Law of the American Bar Association on the Self-Judging Aspect of the United States Domestic Jurisdiction Reservation With Respect to the International Court of Justice (the Connally amendment) and has spoken widely on the subject. He helped organize the Corwin committee, which played a leading role in defeating the Bricker amendment, and the Hand-Dechert committee which is seeking repeal of the Connally amendment.

He is first vice president and a trustee of the Theodore Roosevelt Association; a fellow of the American Bar Foundation; a member of the American Law Institute and a trustee of the Harvard Law School Association of New York City. He is vice president of the Dwight School for Girls, Englewood, N.J., and has served as vice president of the Tenafly, N.J., Board of Education; as junior warden, vestryman and building fund chairman at the Church of the Atonement (Episcopal) in Tenafly; as president of the University of Washington New York Alumni; and as a member of the Executive Council of Alpha Delta Phi.

Has published numerous professional articles and for 2 years lectured on labor law at New York University School of Law.

Mr. Tondel's firm represented the airlines in the famous *Cedarhurst* case in the early 1950's and has represented various airlines in connection with airport noise problems in the last few years, and he has played a leading role in both matters.

BIOGRAPHICAL SKETCH OF SPENCER M. WILLIAMS

He was born February 24, 1922, in Reading, Mass. His schooling is as follows: Public schools in Port Washington, Long Island, N.Y.; Secondary—New Hampshire Prep School; Undergraduate—UCLA, B.A. 1943; Law School—University of California School of Jurisprudence, LL.B. 1948.

His military experience includes active duty aboard heavy cruiser, *Chester*, from July 1943 to October 1945 during World War II. During the Korean war he was with the Office of the Judge Advocate General in Washington, D.C. He presently holds the rank of lieutenant commander in the Naval Reserve.

He is married to the former Katherine Bramlage of Santa Barbara, Calif., and has six children.

He was admitted to practice before all State courts of the State of California in January 1949; all Federal courts of the ninth circuit; U.S. Supreme Court, March 1952; U.S. Court of Military Appeals, September 5, 1951. He engaged in private practice in 1949.

He is a member of the staff of the office of county counsel (since 1950) and county counsel (since 1955). Office of county counsel is concerned with handling civil legal matters of county government, its various departments, school districts, and other special districts of the county of Santa Clara.

He is a member of the State Bar of California, American Bar Association, Bar Association of Santa Clara County; past president of Kiwanis; past president of the Santa Clara County Reserve Officers Association; first vice president of California District Attorneys Association; and was chosen San Jose Young Man of the Year for 1954.

BIOGRAPHICAL SKETCH OF MORTON HARRISON WILNER

Senior partner of Washington law firm of Wilner, Bergson, Scheiner & Lessenco; general counsel, Aerospace Industries Association; general counsel, Armed Forces Relief and Benefit Association; chairman, Legal Committee, National Aircraft Noise Abatement Council; B.S. Ec., Wharton School, University of Pennsylvania, 1930, Spoon Man (First Honor), captain baseball team in 1929 and 1930 and varsity football quarterback 1927–29; LL.B., Georgetown University, 1934; admitted District of Columbia Bar, 1933; Army Air Corps, 1942–45, major; member, Aircraft Scheduling Unit; Legion of Merit, 1945; Deputy Director, Aircraft Production Division, War Production Board, 1945; author, law review articles including "Presidential Defense Department Appointments and the Conflict of Interest Laws," Pennsylvania Bar Association Quarterly, June 1961.

(Whereupon, at 4:35 p.m., the hearing was adjourned.)

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